Volume XXXIV.
Number 4.

JANUARY, 1908.

$2.00 per year.
$3.00 with Directory

1868

TEXTILE WORLD RECORD

1908

Special Features

Fraud in Cotton Bales—A Reply to Mr. Thomas Coates.

Production and Cost.

The Reforms Proposed by the New York Cotton Exchange.

Paying Knitters by the Piece.

The Supply of Domestic Wool.

Mill Conditions in Germany and America, by One Who Has Worked in Both Countries.

LORD & NAGLE COMPANY · BOSTON, MASS.

JOHN JEPSON, BOSTON.

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The Textile-Finishing Machinery Co.

HOWARD BUILDING

STAIRWAYS, 83 EXCHANGE PLACE [ENTRANCES] ELEVATOR, 171 WESTMINSTER ST.

PROVIDENCE, R. I.

BUILDERS OF ALL KINDS OF

MACHINERY

FOR

BLEACHING
DYEING
DRYING

AND

FINISHING

Singeing Machines,

Boiling Kiers,

Washers, Squeezers,

Chemic and Sour

Rusden Patent

Continuous Chainless

Steamer,

Aniline Agers,

Dyeing Machines,

Open Soapers,

Blanket Washers,

Color Kettles,

Horizontal or Vertical Drying Machines, with Copper or Tinned Iron Cylinders,

Automatic Tentering Machines,

Water and Starch Mangles,

Dampening Machines,

Dyeing Machines for Chain Warps.

Calenders for Rolling, Glazing, Chasing and Embossing, also Calenders for Moire Finish.

Sole Manufacturers of Patented Flexible Cloth Expander for Cylinder Drying Machines, Calenders, Mangles, &c.

Patent Combination Rolls Made of Cotton and Husk, especially adapted for Soft Finish, Unequalled for Elasticity and Durability.

Cotton, Paper, Husk, Chilled Iron, Brass and Rubber Rolls, Electro-deposited Copper Rolls for all Purposes.

Padding and Drying Machines for Shade Cloths.

Single and Double Cylinder Engines.

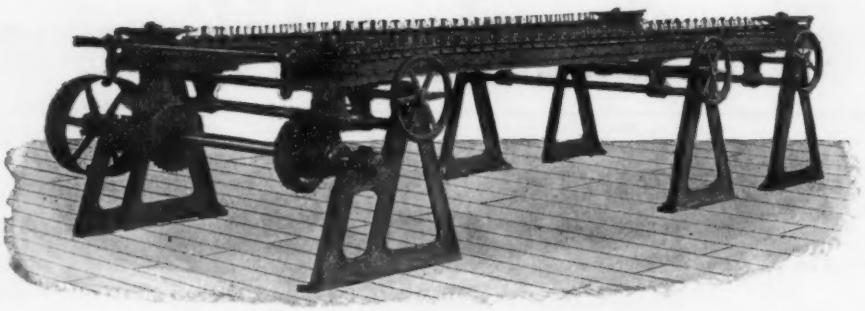
Hydraulic Presses and Pumps.

Mercerizing Machinery for Piece Goods and Yarn in the Warp or Chain

ALL KINDS OF OUTFITS FOR BLEACHING THREAD AND SOFT TWISTED YARN.
BLEACHING MACHINERY FOR YARNS IN THE WARP OR CHAIN.

Estimates, Drawings and full particulars of complete plants furnished on application.

Southern Agent, STUART W. CRAMER, Charlotte, N. C., Equitable Building, Atlanta, Ga.



STRAIGHT AUTOMATIC TENTERING MACHINE

Dyeing, Bleaching, Drying and Finishing Machinery

for all textile fabrics.

H. W. BUTTERWORTH & SONS CO.

PHILADELPHIA, PA.

Providence Office, Room 417 Industrial Trust Building.

The Camless Winder

16,048

Spindles sold in three years.

An UNPRECEDENTED RECORD, which to any fair mind must denote IMPROVEMENT, and PROMOTE INTEREST.

The

Camless Increased Taper Cone

is unquestionably a factor in the machine's success

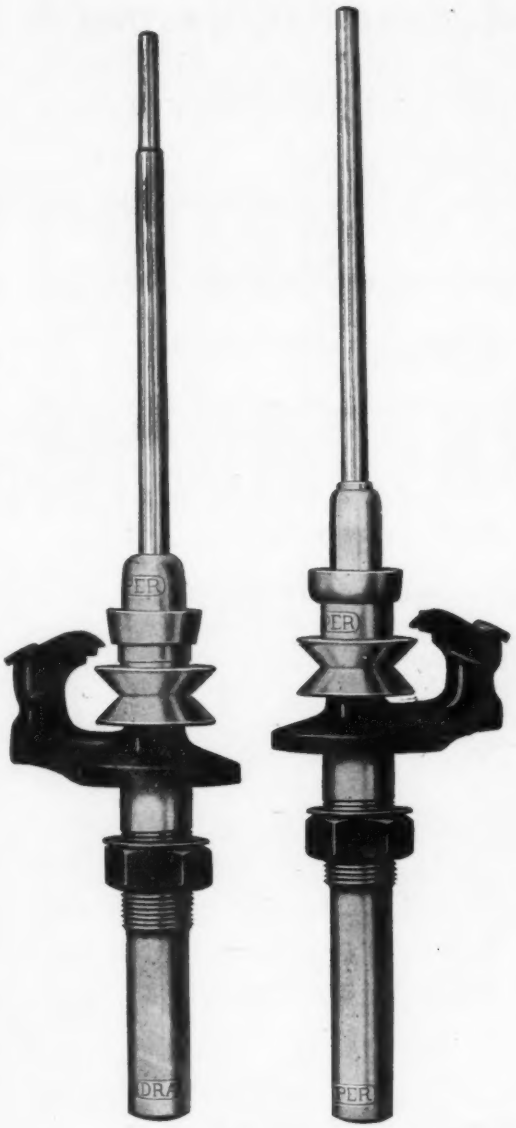
As **LEADERS** not **FOLLOWERS** of this system, we INCREASE the angle of the cone without changing SHAPE OR SIZE of pasteboard core.

RESULT

MORE yarn and **LESS** hole

Think this over.

Lowell Machine Shop, Lowell, Mass.



Two New
Large Size
Spinning Spindles.

We make

Draper,
Whitin,
McMullan

and other
types of

Spindles;

also

Northrop Looms,

Twisters,
Warpers,
Spoolers,
Reels,

Banding Machines,

etc., etc.

Draper Company,
HOPEDALE,
MASS.

THE EMPHATIC SUCCESS OF OUR "IDEAL" AUTOMATIC LOOM IS DUE TO SEVERAL SALIENT POINTS OF SUPERIORITY OVER ALL COMPETITORS:

1st. The ease and smoothness with which they start up.

2d. The acknowledged superiority of the cloth woven.

3d. Simple and thoroughly mechanical construction, assuring freedom from the constant breakage and expensive repairs attending other automatic looms.

4th. No special bobbins, shuttles or other expensive parts.

5th. Ability to use cop or bobbin filling interchangeably.

6th. Superiority of warp stop motion which does not break or fray the softest yarn.

7th. Of the thousands in operation not a single bobbin or crank shaft broken.

IN PROOF OF CLAIMS WE POINT TO THOSE MILLS FORMERLY USING OUR COMPETITORS' LOOMS THAT ARE NOW USING OURS.

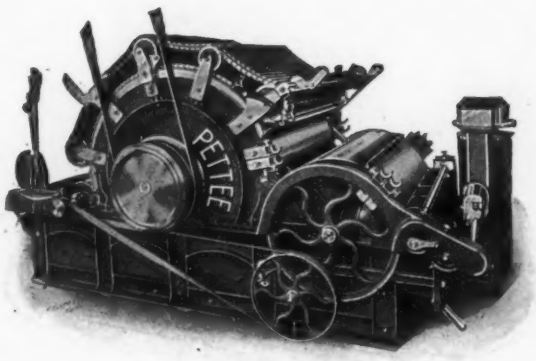
The Stafford Company

Readville, Mass.

Saco and Pettee Machine Shops

NEWTON UPPER FALLS, MASS., U. S. A.

COTTON MACHINERY



Revolving
Flat Cards,
Drawing
Frames,
Railway Heads,
Slubbing,
Intermediate
and
Roving
Frames,
Spinning Frames,
Spoolers
and
Reels.

Shops—

Biddeford, Me.

Newton Upper Falls, Mass.

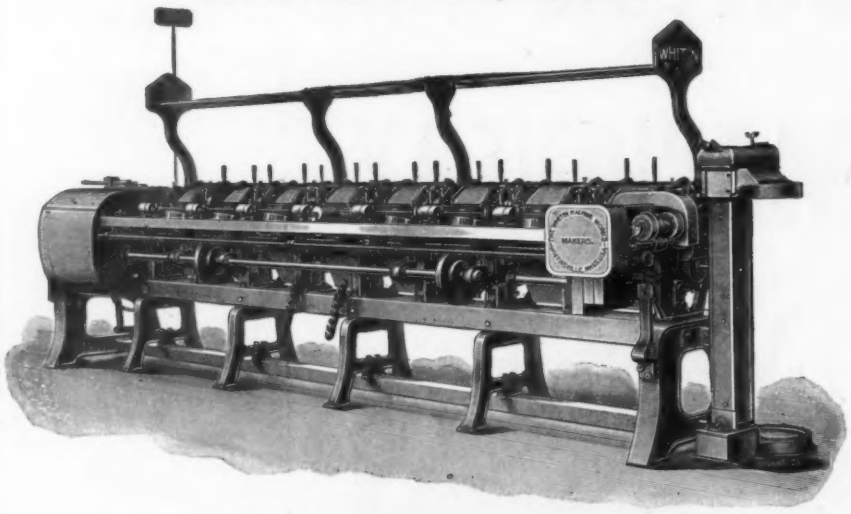
Southern Agent, A. H. WASHBURN, Charlotte, N. C.

THE

WHITIN MACHINE WORKS,

Cotton Machinery

WHITINSVILLE, MASS.



HICH SPEED COMBER 1906 MODEL.

Revolving Flat Carding Engines,
Sliver Lap Machines,
Ribbon Lap Machines, Combers,
Railway Heads, Drawing Frames,
Spinning Frames, Spoolers, Twisters,
Long Chain Quilling Machines, Reels, Looms.

Southern Agent,
S. W. CRAMER

Trust Building, CHARLOTTE, N. C.
Equitable Building, ATLANTA, GA.

"Kitson Products"

Blowing Systems

For Conveying Bale Cotton
from Storehouse to Picker-room

Self-Feeding Openers
Lappers and
Cleaning Trunks

Waste-Working Machinery

Raw Stock Cotton Dryers

We own the Patterns and can furnish REPAIR PARTS for PICKERS
formerly built by

WHITEHEAD & ATHERTON, . Lowell, Mass.
ATHERTON MACHINE CO., - - Lowell, Mass.
A. T. ATHERTON MACHINE CO., Pawtucket, R. I.

Kitson Machine Shop

Lowell, Mass.

SCOTT & WILLIAMS

2079 E. Cumberland Street, Philadelphia, Pa., U. S. A.

BUILDERS OF

Full Particulars, Samples nnd Special Catalogues on Application.

Rib Knitting Machinery for Underwear and Hosiery

Plain, Single Lever or with Welt, Slack Course and Automatic Slackening Device for Welt.

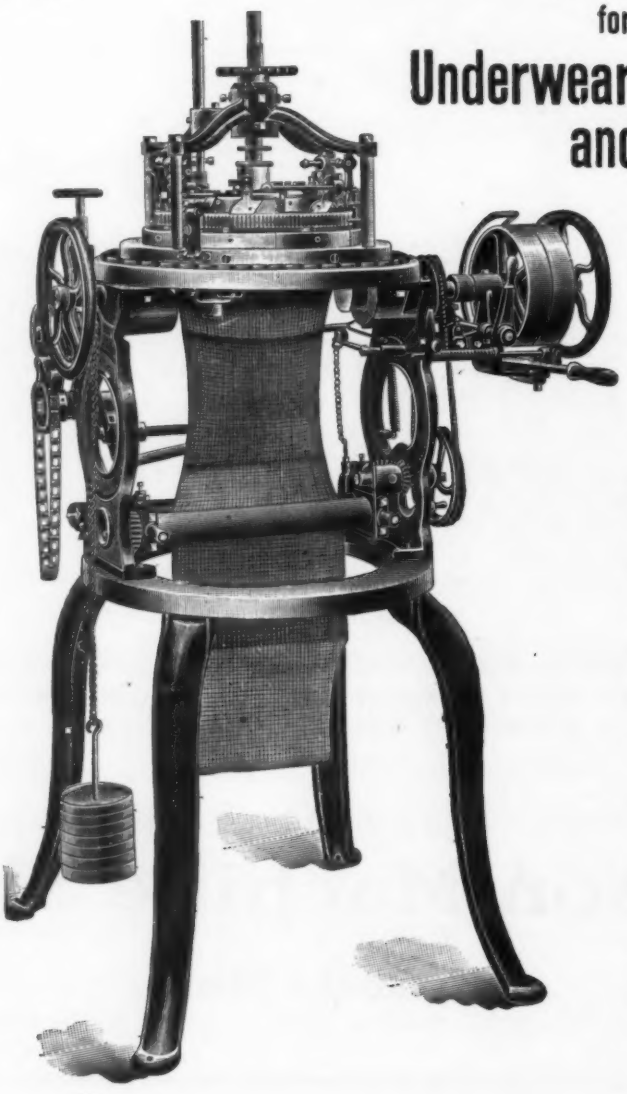
Improved Measuring Device, by actual length knit.

Sizes 8 to 24 inches, inclusive, varying by one inch.

Number of Feeds, 4 to 12, according to style and diameter of machine.

Solid Forged Steel Cylinders, specially hardened or with patent inserted walls for fine fabric.

Special Machinery for Sweaters, etc.



The illustration shows our

Improved High Speed Single Lever Automatic Ribbed Underwear Machine

for making ladies' and gents' ribbed underwear, union suits, etc., plain and shaped.

We build Loopers, Ribbers and other Machinery for Knitting Mills

As well as

A Complete Line of Full Automatic and 7-8 Automatic Seamless Hosiery Machinery.

The Sentinel Electric Warp Stop Motion

with spring wire detector head for plain weaves.

Each detector wire controls two threads making this Stop Motion especially adapted for high sley goods. The position of the broken end is distinctly indicated.

WE CALL SPECIAL ATTENTION TO OUR

New Drop Wire Warp Stop Motion

for both plain and fancy weaves

Each detector wire controls a single thread and clearly indicates the position of the broken end. By a new form of drop wire, positive contact is assured and maintained, insuring instant stopping of the loom.

American Textile Appliances Co.

79 Milk Street, Boston, Mass.

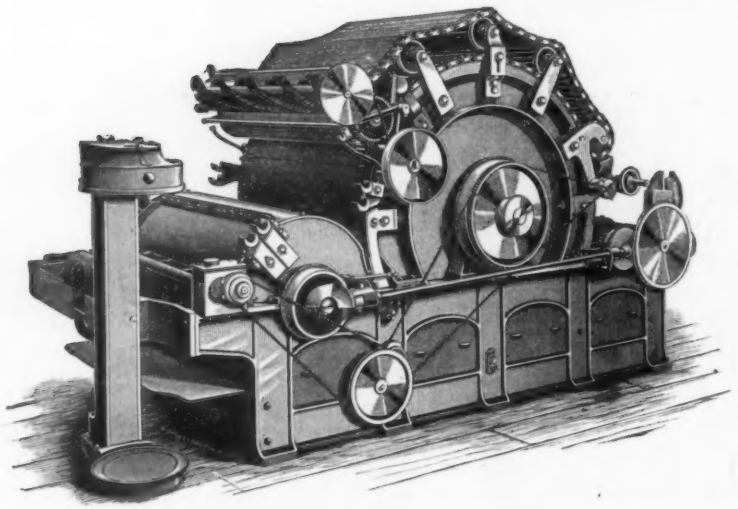
William Firth, Treasurer

Cotton Machinery

MASON MACHINE WORKS,

TAUNTON, MASS.

Southern Office,
Charlotte,
N. C.



Cards,
Combers, Railway
Heads, Drawing Frames
Spinning Frames, Mules and Looms

INCLUDING

Plain and Fancy Silk Looms

EVAN ARTHUR LEIGH

232 Summer Street (opposite the South Station), Boston, Mass.

SOLE AGENT

IN THE UNITED STATES AND CANADA FOR

Platt Bros. & Co., Ltd.

BY FAR THE LARGEST MAKERS IN THE WORLD OF

Cotton, Woolen and Worsted Machinery

Platt's Patent Opening and Picking Machinery.
Platt's Cotton Comber will comb from 7-8" stock to Sea Islands.
Platt's Special Machinery for Making Cotton Waste into Yarns.
Platt's Special Machinery for Making French Worsted Yarns.
Platt's Woolen and Worsted Carding Engines, Special Designs.
Platt's Cotton, Cotton Waste, Woolen and Worsted Mules.

MATHER & PLATT, LTD.

Dyeing and Finishing Machinery.
Archbutt-Deeley System for purifying and softening water.

TEXTILE MACHINERY ASSOCIATION, LTD.

Flax, Hemp and Jute Machinery.

GEORGE HODGSON, LTD.

Looms for Worsteds, etc.

THE PATENT AUTOMATIC FEEDING MACH. CO., LTD.

Patent Feeding Machines for wool, cotton, flax, fur and fibrous material.

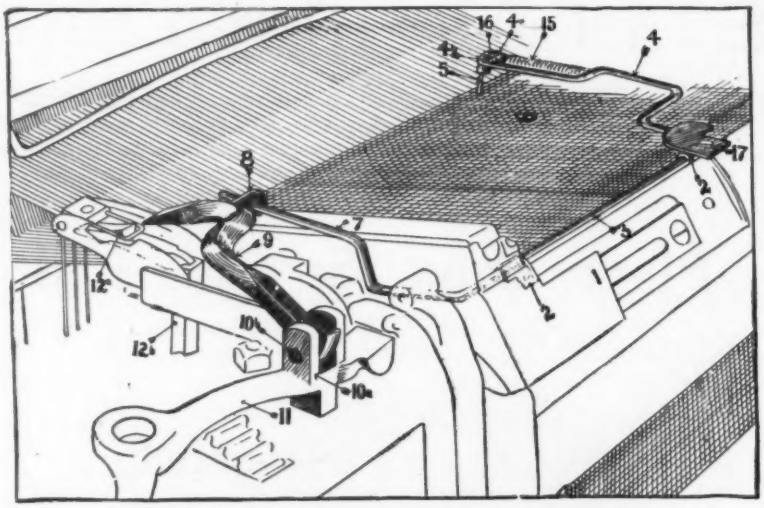
JOSEPH SYKES BROS.,
Card Clothing for Cotton.

JAMES CRITCHLEY & SON'S,
Card Clothing for Woolen and Worsted.

DRONSFIELD BROS'.

Grinding Machinery and Emery Filleting. The Best French and English Combing and Rubbing Aprons. Harding's Pins and Circles. Varey's Fallers, etc.

CLAYTON & BENTLEY



Automatic Thin-Place Preventer.

AUTOMATIC IRON BREAST BEAM LOOMS being the principal market for Thin-Place Preventers we here illustrate our model which has been adopted by a large number of Southern mills for this class of loom. Older models of AUTOMATIC LOOMS (Wood Breast Beams) require slightly different construction, but our device for this Wood Breast Beam Loom gives the same complete satisfaction as the device here illustrated is giving on *thousands of Iron Breast Beam Looms*.

Over 18,000 Sold in the South in the First Eight Months.

When properly adjusted this device is GUARANTEED to detect and PREVENT THIN PLACES, without tearing the cloth.

WITHOUT EXPENSE TO YOU we will equip a few of your looms and let the device do its own talking.

SALESMEN NOW IN THE EAST.

MANUFACTURED BY

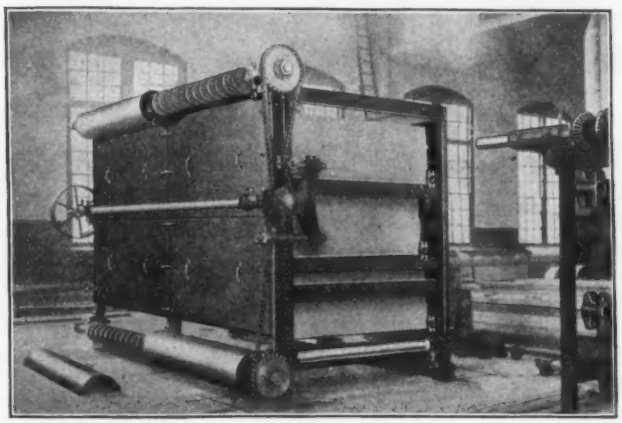
CLAYTON & BENTLEY COMPANY,

P. O. Box 624 ATLANTA, GEORGIA

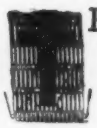
CELL DRIER MACHINE CO.
TAUNTON, MASS.

An eight-foot Cell Drier equals a 55-foot Cylinder Drier

in capacity and is economical
of first cost, labor and power



CELL DRIER ASSEMBLED AT OUR TAUNTON PLANT

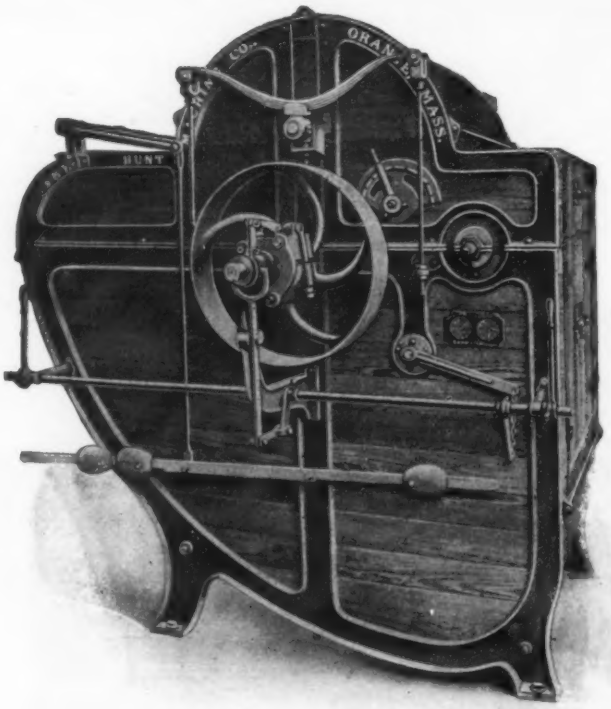


THE CELL DRIER is now used in many of the leading mills. The one here shown is a re-order from a mill in which our Driers have been thoroughly tested. We offer the simplest and most inexpensive method known for drying cloth or yarn.

Write for photographs of Cell Drier installations with full particulars and estimates.

THE CELL DRIER

Rodney Hunt
MACHINE CO.
ORANGE MASS.



RODNEY HUNT-TYPE SH-FULLING MILL

Less cost to operate—by—more efficient design
Less first cost—by—more modern production
Less repairs—by—superior construction
Special Circular No. 301 tells why it has MORE CAPACITY and gives BETTER RESULTS
SOLD ON TRIAL
It will pay to investigate our

TEXTILE WET FINISHING MACHINERY

RODNEY HUNT MACHINE CO.

Branch Office: 70 Kilby St., Boston. - Main Office and Works: Orange, Mass.

JAMES HUNTER MACHINE CO.

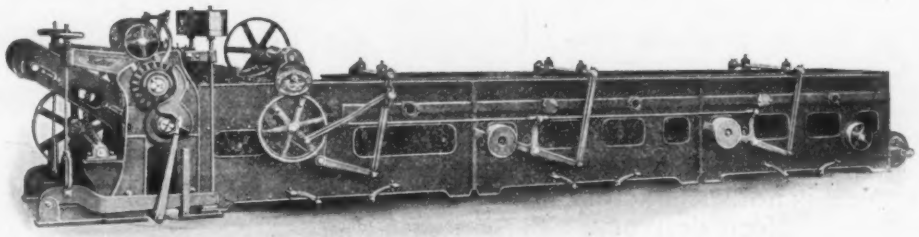
NORTH ADAMS, MASS., U. S. A.

Wool Washers. *Bulletin 54*

The Hunter

MODEL D

WOOL WASHER



Parallel Rake.

Not "A Has Been." Not "A Going To Be"
but a present day success.

Bowls 36" or 48" wide; 16-24-32 and 40 feet long.

Better work and more of it.
Large Settling Bowl giving clean scouring liquor.

Self Contained Flushing Appliance.

Better investigate.

Jacob K. Altemus is

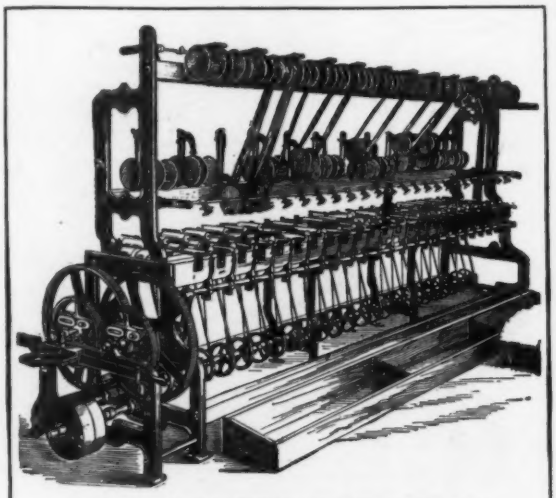
Able to supply the best

Cop Winding Machinery

Or Hosiery Winders and more in particular

Bobbin Winders,

Keep in mind that I



The Greatest Bobbin Winder for Skeins Ever Built.

Always produce machines that are right

Letting nothing go out

That is not satisfactory before delivery.

Every

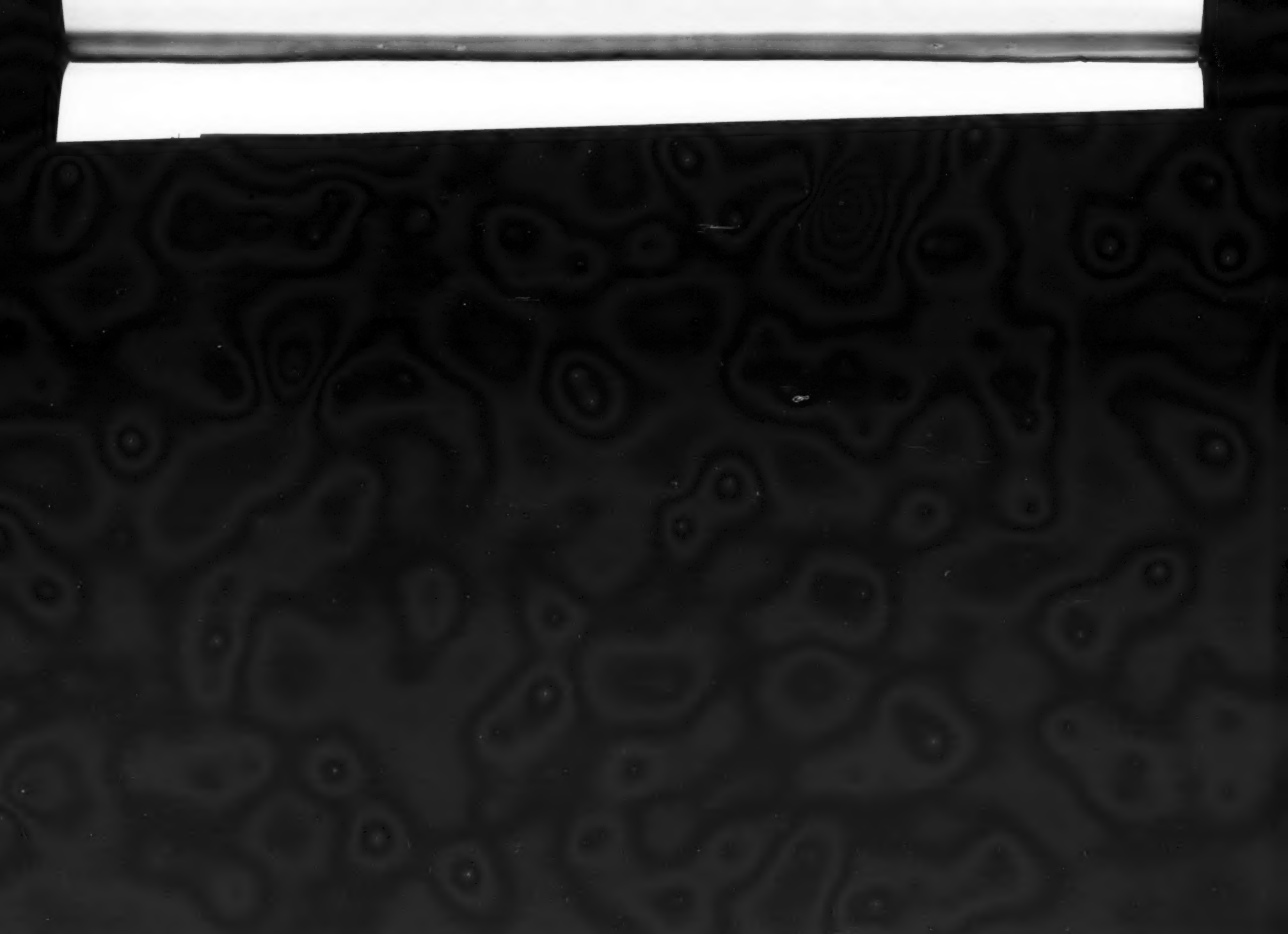
Manufacturer should investigate warping and beaming machinery, warp splitting as well,

Upright Spoolers, Quillers, Warpers, Twisters, etc.

Send for full information and prices.

Textile Machinery

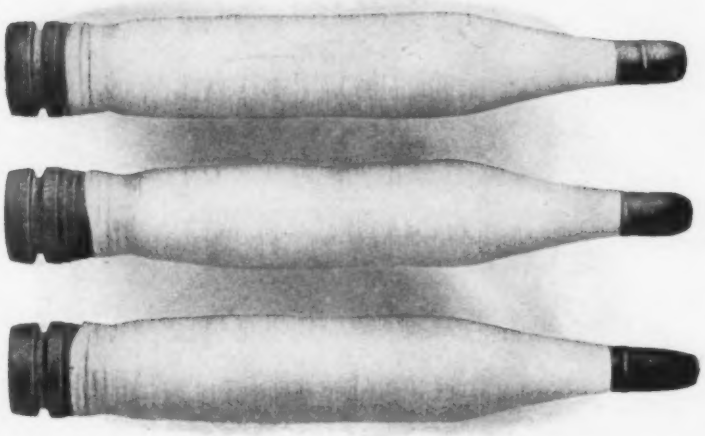
2824 N. 4th St., Philadelphia, Pa,



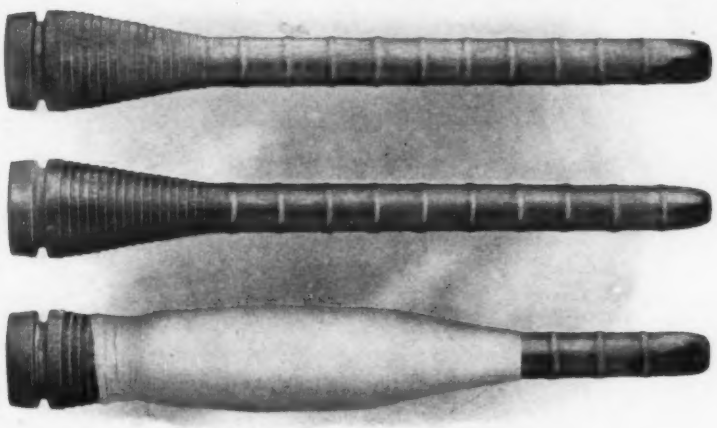
THE NEW UNIVERSAL FILLING BOBBIN

The Sum and Substance of it

The above UNIVERSAL Filling Bobbin



was wound from these THREE bobbins



leaving only this amount of yarn.

The NEW UNIVERSAL FILLING BOBBIN guarantees running the loom TWO to THREE times as long without stopping to replenish filling.

[SEE OTHER SIDE]

THE NEW UNIVERSAL FILLING BOBBIN

Ordinary Bobbin in Shuttle

[SEE OTHER SIDE]

TWICE as much YARN in the SHUTTLE

with any kind of material; in many cases **Three** times as much.

The advent of this Bobbin inaugurates a new era in the weaving industry by guaranteeing at the loom an increase in production per operative of from 40 to 60 per cent.

The yarn is laid in regular, systematic, cross-wound coils in the UNIVERSAL BOBBIN.

The UNIVERSAL BOBBIN delivers without break and with uniformity. Yarn will not catch on nose of bobbin nor will it slough off. Every inch of yarn is delivered from the shuttle, leaving **no waste.**

The UNIVERSAL BOBBIN is wound with a very **light tension** so that the yarn is not pulled down or weakened, but is cleaned and smoothed to such an extent that **no further conditioning is required.**

Substantial Savings in Cost of Production on all woven goods for the following reasons: —

1. Loom runs two to three times as long without stopping to replenish filling.
2. Fewer pickouts from stops.
3. No pickouts from breaks.
4. No pickouts from slubs or bunches, yarn being cleaned in winding.
5. No conditioning of yarn required.
6. No waste from breaks or from yarn being left in shuttle.
7. Less than half the usual number of bobbins required.
8. No expense for renewing bobbins, which are indestructible.
9. **IMPROVED FABRIC and FEWER SECONDS.**

THE NEW No. 90 UNIVERSAL BOBBIN WINDER

(NOW READY)

A PRACTICAL, PERFECTED, HIGH SPEED MACHINE

Like the successful No. 50 for cones and tubes is self-oiling. All gears and engaging parts enclosed in oil tight, dust and lint proof compartments.

Write now for descriptive circular with price

Universal Winding Company

95 South St., BOSTON, Mass., U. S. A.

Factory: 99 Stewart St., Providence, R. I.

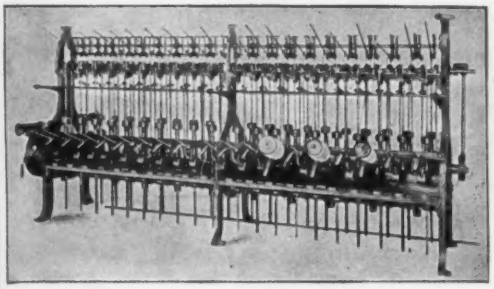
UNIVERSAL Bobbin in Shuttle

OSWALD LEVER CO.

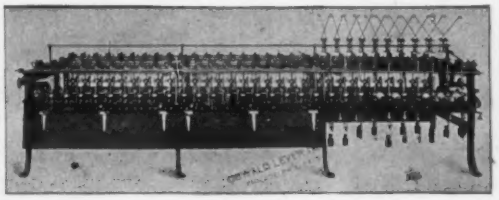
(Formerly LEVER & GRUNDY.)

MANUFACTURERS OF TEXTILE MACHINERY AND SOLE MAKERS OF OUR PATENTED SPECIALTIES IN THE UNITED STATES.

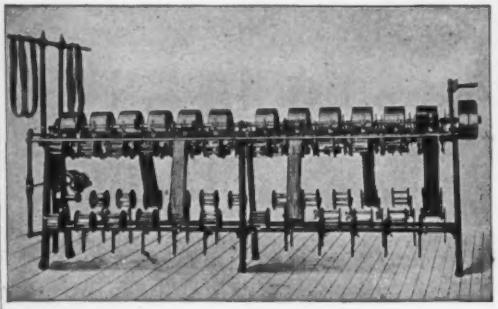
Conical and Parallel Tube Winding Machines; Warping Machines and Creels; Brass Bobbin Winding and other Machinery for lace mills; Chenille Cutting Machines, Sectional Warping Mills, Beaming Machines, etc.



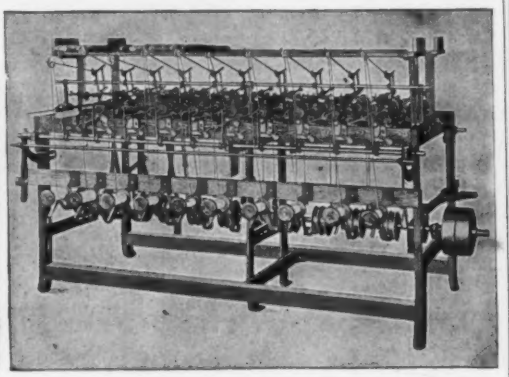
Vertical Spindle Gear Driven Winder, as used by all manufacturers of heavy duck, jute, cotton bagging and carpets.



Silk Winder to wind on Quills, Paper Tubes or Butts. The finest of cotton or silk.



Pressure Drum Spooling Machine. This machine is adapted for spooling any kind of yarn, whether from mule cops or skeins.

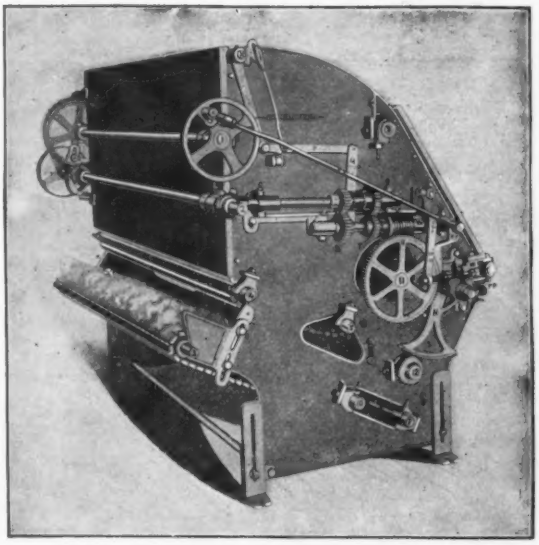


This Machine may be arranged to wind from skeins, spools, cones, or any kind of spinning bobbins. Most suitable machine for cotton or woolen blankets.

Cop Winding Machines for butts to weave from outside; Filling Bobbin or Quill Winding Machines; Vertical Spindle Spooling Machines for Silk, fine cotton, wool and worsted; Variable Speed Bobbin Machines for large bobbins used in knitting mills; Dresser Spooling Machines; Reeling Machines.

Lehigh Ave. and Mascher Sts., PHILADELPHIA, PA., U. S. A.

THE FISHER PATENT CARD FEED



Write Us For List of Mills Where Machines Are Used.

Woonsocket Machine and Press Company

WOONSOCKET, R. I.

PRACTICAL FIRE PROTECTION

If you want your mill buildings properly protected against the fire hazard, thereby obtaining the lowest insurance rates, you must have a supply of water which is instantly available under high pressure and absolutely independent of the successful or immediate operation of pumps or other machinery. The old method of storing such a supply was by wood tanks, generally built on top of buildings. As these tanks are short lived they soon become, themselves, a menace to the building instead of a protector. The sudden bursting of such a tank has often done as much damage as a fire. The up-to-date method of storing water is by means of a steel tank on a steel tower. We make a specialty of the design, manufacture and erection of these tanks of any desired capacity, in any part of the country, to meet any local conditions. Our tanks are recommended by the Factory Mutual Insurance Companies and endorsed by all of our past customers. We have built about seven hundred towers and tanks in all parts of the country, about 50 of which have been erected for Textile Mills. Every one of these is giving satisfaction. Write for booklet No. 7 which gives a list of all our customers with whom we invite you to correspond. The cut shows a tank which we built for the Belton Cotton Mills, at Belton, S. C. The large tank is kept full at all times for fire protection; the small one supplies water for use in the buildings.

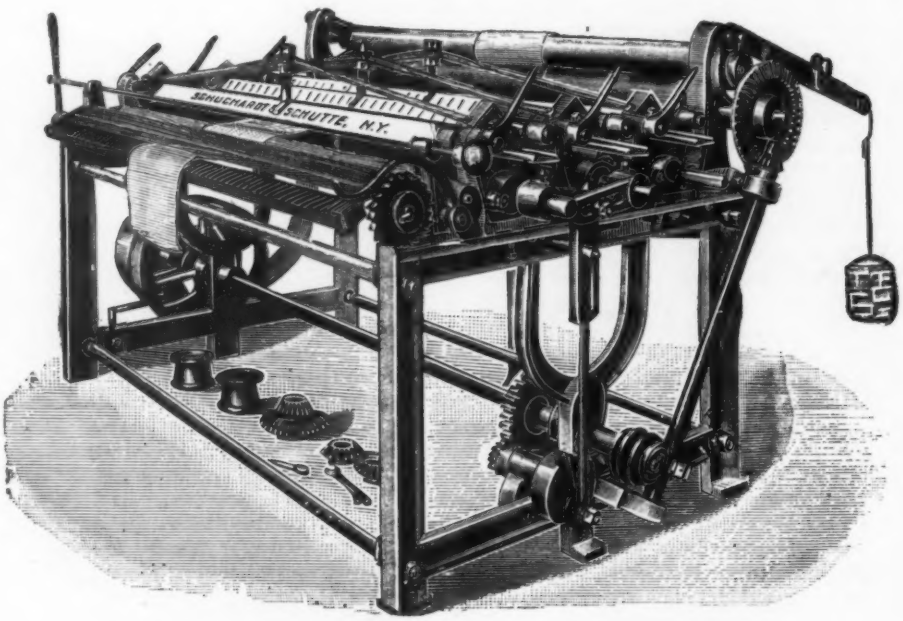
Chicago Bridge and Iron Works

105th and Troop Sts. Chicago, Ill.

Do not fail to get information about our

Improved Finishing Machines

They embody features not to be found in other makes.
This illustrates our



No. 13 Pneumatic Grinding and Polishing Machine.

Our line also includes

No. 19 Combined Steamer, wet and damp steam Dry Finishing Machine.
No. 22 Gumming Machine.
No. 23 Stretching and Drying Machine.
No. 28 Lacquering and Lustre Machine.

CARBONIZING MACHINERY.

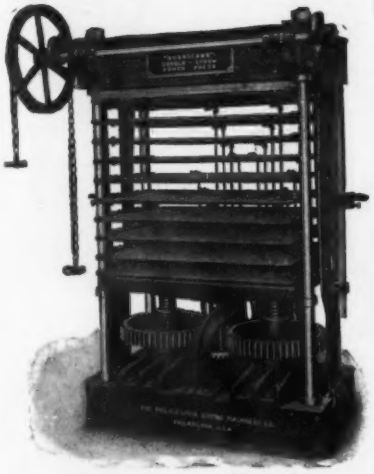
Schuchardt & Schuette, 136 Liberty Street, New York

London St. Petersburg Berlin Kopenhagen Vienna Budapest Stockholm Shanghai

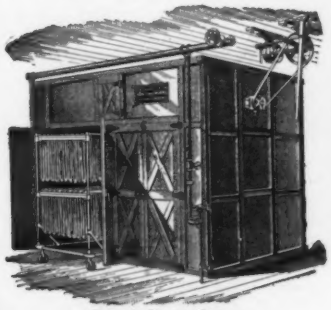
"HURRICANE" DRYERS AND FANS

For Wool, Cotton Stock, Yarn, Stockings, Underwear, Etc.

BELT DRIVEN AND MOTOR DRIVEN



Power Screw, Hydraulic and Lever **Presses**



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"Hurricane" Fan, Style No. 2. Write for Catalogues.

COMPLETE EQUIPMENTS FOR DYEING, SCOURING, BLEACHING, CARBONIZING, OXIDIZING, CHROMING, Etc.

PHILADELPHIA DRYING MACHINERY CO.

6721 Germantown Ave., Philadelphia, Pa.

Uniform humidity

day by day from card room to cloth room gives

Uniform quality

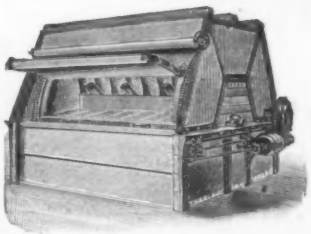
VENTILATION & HUMIDIFICATION — BELL PURE AIR AND COOLING CO. — TRADE MARK

The finest stock, the best machinery and the most skillful operatives count for little where unfavorable atmospheric conditions exist. The Bell System produces the best of English atmospheric conditions and automatically maintains them regardless of climatic changes.

No squirting of steam or water into the rooms, no uneveness of atmosphere, no condensation, no unhealthful conditions for the operatives.

For further facts and full information write

Bell Pure Air & Cooling Co., 97-103 Cedar St., New York.



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MACHINES
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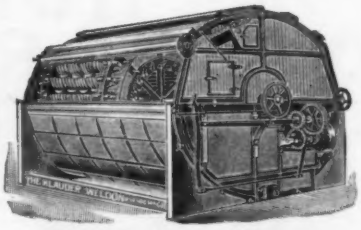
2 MONTHS' TRIAL
YOU
TAKE
NO
RISK



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THE KLAUDER-WELDON DYEING MACHINE COMPANY

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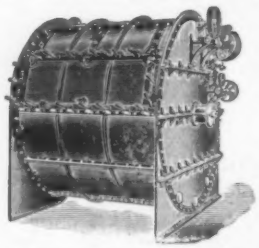
Machines for Dyeing, Bleaching and Scouring Woolen, Worsted, Cotton and Silk Skeins—Slubbing—Raw Cotton and Wool, Waste, Rags, Shoddy, Hosiery, Underwear, Hats, Caps, Knit Cloth, Tapes, etc.



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Special Machines for Sulphur Colors

WILL EARN THEIR COST IN
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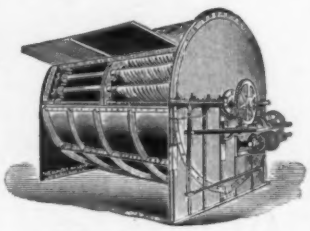

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MAKERS OF MACHINERY FOR

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Special Machinery
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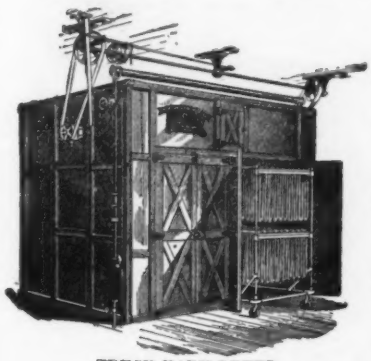

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Dryers for Wool and Cotton Stock, Yarn, Stockings and Underwear.

Carbonizers, Yarn and Wool Scouring Machines.

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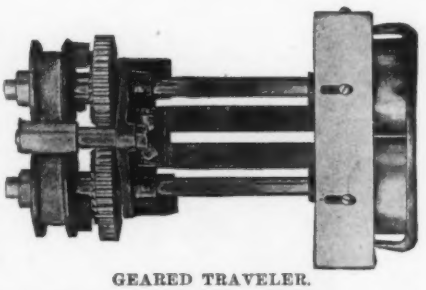

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We also manufacture Kershaw's Geared Traveler and Improved Web Feed.

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WROUGHT STEEL

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Is a parting PULLEY and can be applied without stripping the shaft.
It is Light, STRONG, and lasts a lifetime.
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Interchangeable metal Bushings to fit shafts of different sizes.
Particularly adapted to TEXTILE manufacturing.

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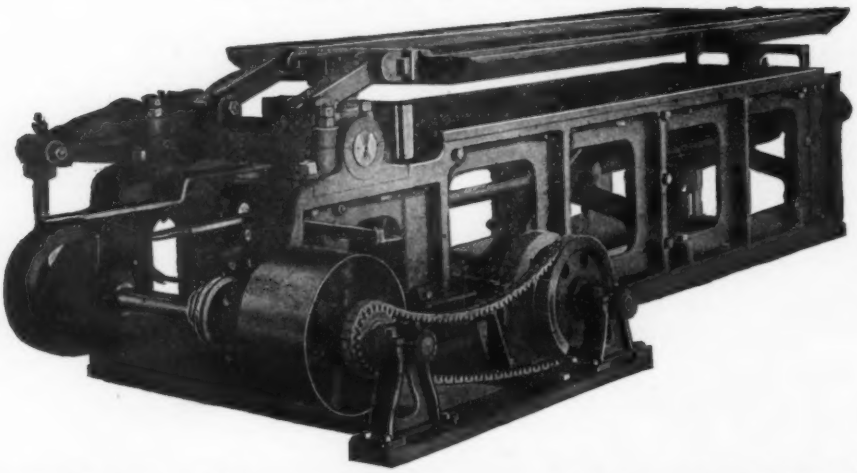

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Chilled and Soft Iron Rolls. Heavy Transmission Machinery.
Machine Moulded and Machine Cut Gearing, to 20 ft. diameter, Etc., Etc.
Heavy Castings, in Gray Iron or Semi Steel.

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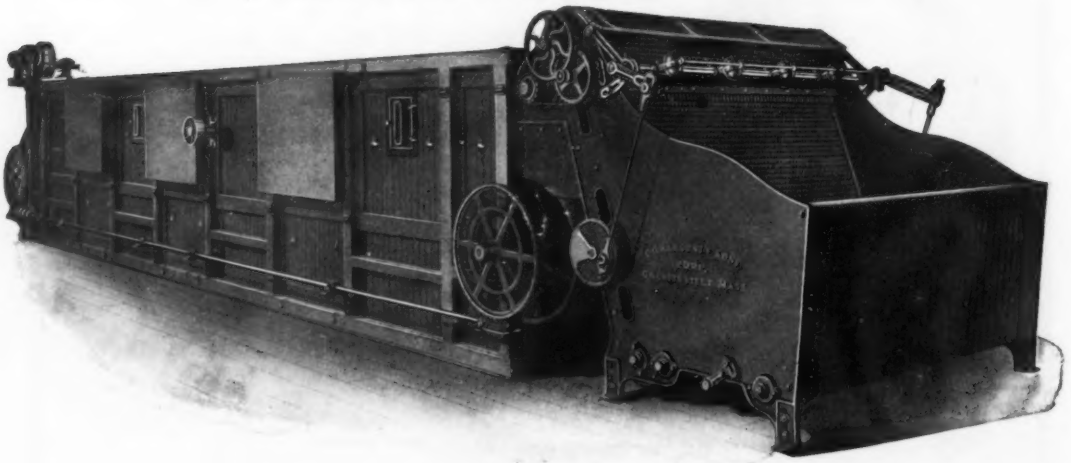

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Barber Warp Tying Machines Pay Dividends

Over 175 Barber Warp Tying Machines *in use* in the United States alone.

Each machine has reduced the former drawing-in expense to a very small amount. This reduction is actual, not theoretical.

Figure your *annual* drawing-in cost, and deduct the comparatively small operating expense of the Barber Warp Tying Machine. You will find the result to be from 25% to 75% of the purchase price of a machine. Isn't such a yearly return worth the investment?

This is *one* of the reasons the Barber Warp Tying Machine has been so quickly and generally adopted. There are also other reasons, based on production, economy and labor.

The above statements are founded on the actual performances of the 175 machines already in use. We can furnish you facts and figures, and hope you will allow us the opportunity.

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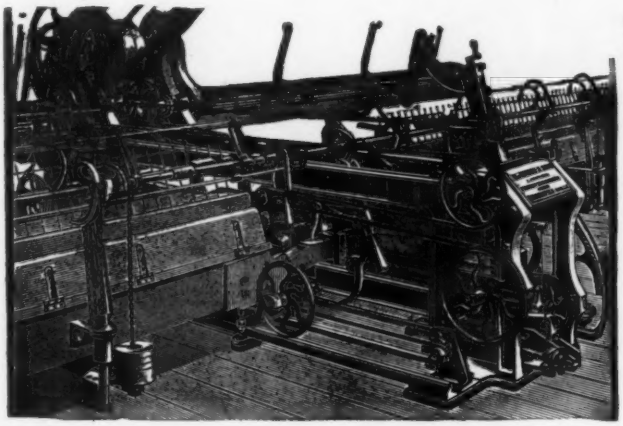

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Makers of all descriptions of Tentering and Drying Machines.

Moore & Whiteley's Patent Wool and Cotton Dryer.

Crabbing or Winding-on Frames.

Cross Raising Machines, Wool Scouring Machines,

Hydro Extractors. Warp Sizing.

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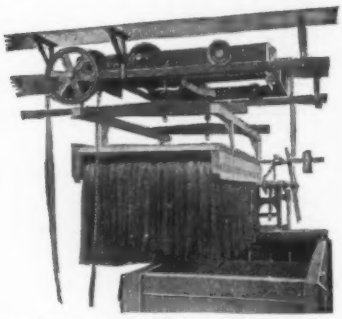
Second-hand Tentering Machines in good repair at low prices.

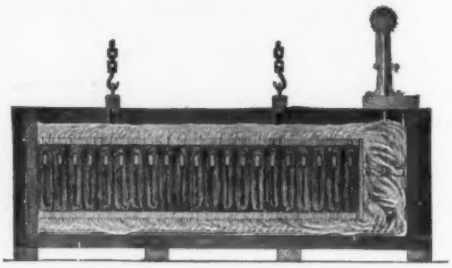
The Hussong Dyeing Machine

Patented Nov. 6, 1900. April 9, 1901. Nov. 29, 1904. June 5, 1906.

THE ONLY MACHINE THAT WILL DYE SULPHUR BLACK SUCCESSFULLY.



This illustration shows our Compressed Air Hoisting Carriage, with 300-pound Yarn Machine Suspended.



Longitudinal Sectional View, showing the circulation of dye liquor through the yarn when in operation.

Points of Superiority Which We Claim for the Hussong Machine.

Durability, Even Dyeing, Saving of Steam, Saving of Dyestuff, Saving of 75% in Labor, Makes No Waste Whatever, Requires but Little Power to Operate, No Friction on the Material, Leaves the Yarn and Slubbing in its Natural Condition.

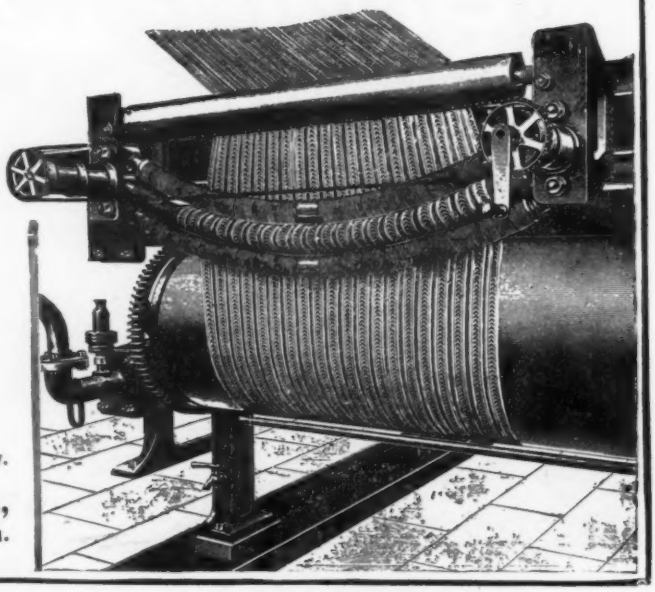
Built by the **American Dyeing Machine Co., Office 609 Pearl St., Camden, N. J.**

BEWARE OF INFRINGEMENTS.

Perfectly Even Tension Both Ways

THIS ideal cloth expander gets the full width of the goods in a most satisfactory way. Can be attached to calenders or cans. Hundreds in use in Great Britain and on the Continent—hundreds more in the United States, with constant satisfaction.

Manufacturers unsolicited say to us, "You have the greatest thing in a spreader ever brought to our attention."



We put them in on trial.
Test it on your own work—'t will pay.

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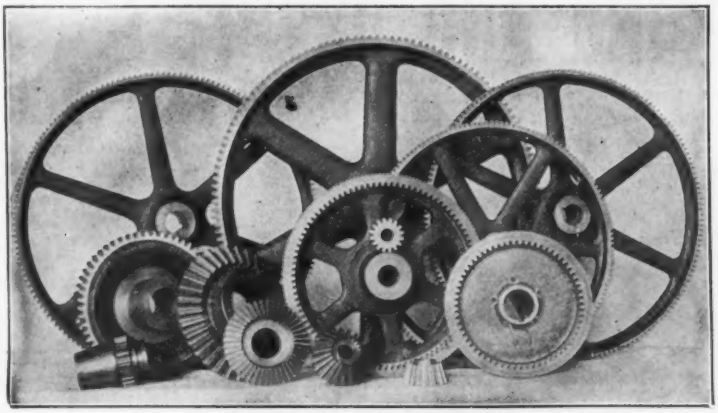

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Can you afford

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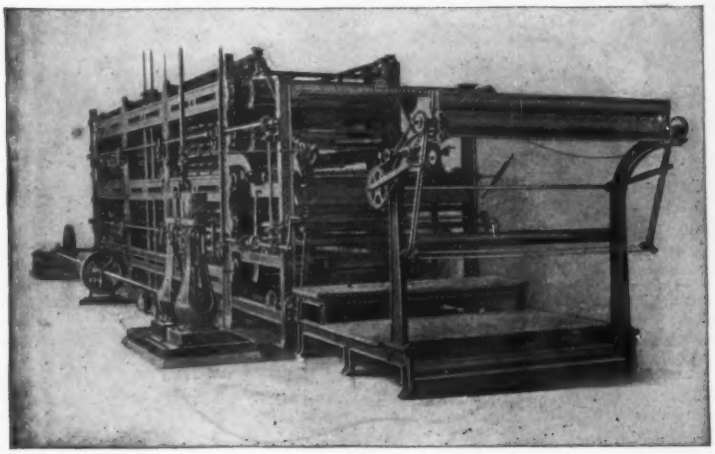
TENTERING AND DRYING MACHINES

WITH LOW DOWN FEED. PATENTED FEBRUARY 26, 1895.



Tentering and Drying Machines on Pipe System. Special Dryers for Heavy Felt Goods. Hot Air Drying and Tentering Machines.

Fulling Mills, Washers, Chinchilla and Whitney Machines, Whipping Machines, Cone Willows, Marsden & Blamire Lap Feed, Dyeing Machines for Piece Goods, Soaping Machines, Wringing Machines, Jigs (Double or Single), Dewing Machines, etc. Crabbing Machines for worsted. Made either single, double or triple.

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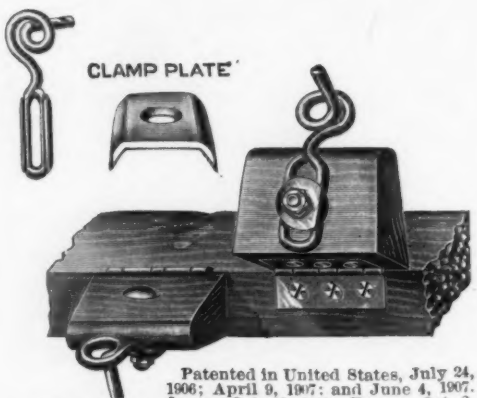
Palmer's Improved Adjustable Thread Guide

This guide supplies an accurate, rigid and permanent adjustment, and is attached to the ordinary spinning frame clapper. It has more merits than any other adjustable guide and at a greatly reduced cost. Perfect adjustment saves broken ends, abnormal wear of the rings, and increases the production and quality. Will soon pay for itself. *Send for free sample and circular.*



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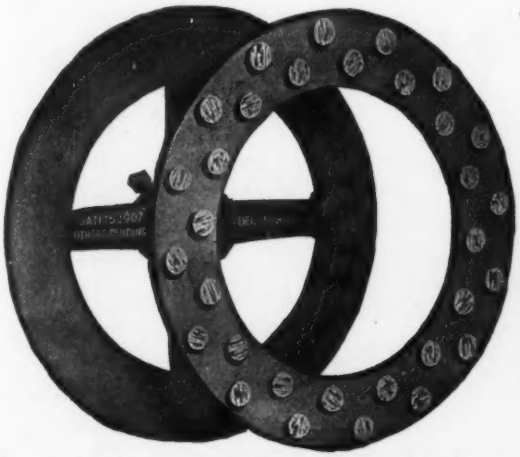
The I. E. Palmer Co.

Middletown, Conn , U. S. A.

Patented in United States, July 24, 1906; April 9, 1907: and June 4, 1907. Japan, Oct. 12, 1906. France, Oct. 2, 1906. England, Sept. 13, 1906. Spain, July 23, 1906. Belgium, July 24. 1906 and Italy.
Patents applied for in the United States, Germany, Switzerland, Austria, Russia, Poland and India.



Easily attached to Looms now in use.

Cork Insert Fibre Rings

transmit more power, pick up quicker, are not affected by oil, water or dust, and last much longer than leather-facings.

Require no repairs. Need no cleaning.

14 in. and under, $1.00. Over 14 in. to 16 in. inclusive, $1.25. Over 16 in. special prices.

In ordering, please give outside diameter and width of face.

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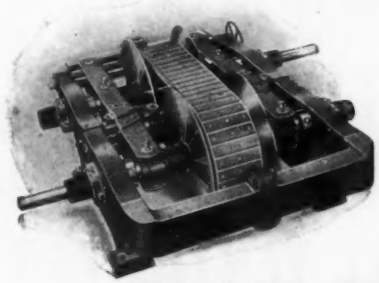
National Brake & Clutch Co., 16 State St., Boston.

"The Reeves" Variable Speed Transmission



Used to regulate the speed of textile machinery such as tenter frames, driers, dyeing machines, printing machines, in fact any machine requiring variable speed.

INCREASES THE OUTPUT TO THE MAXIMUM

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REDUCES OPERATING EXPENSES TO THE MINIMUM

What more could you ask?

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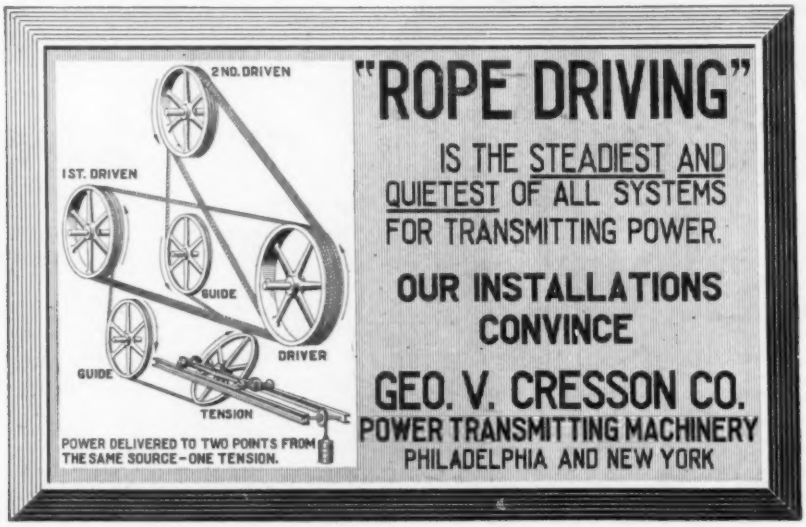

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IRWIN SKYLIGHTS
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LIGHT, DRY AND WELL VENTILATED

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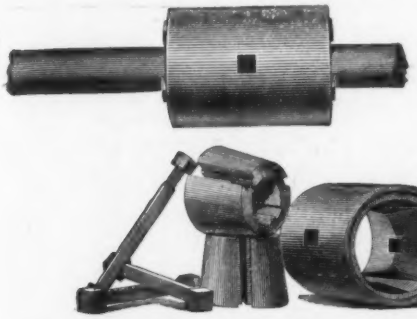

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DOUBLE CONE VISE COUPLING

has a way of holding shafts together, that no other COUPLING can equal.

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SHAFTS,
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and all most approved appliances for the Transmission of Power.

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is the most important problem of its construction. By using the saw tooth construction of roof with the "*Anti Pluvius*," system of skylight the maximum amount of light is carried into the building to every part of the floor. The ventilation is another important consideration and every mill should be equipped with the *Lovell Window Operating Device* by means of which a long line of sash can be opened and closed from one station. Let us submit estimates for the lighting and ventilation of your building. We will guarantee satisfaction.

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Is Your Mill Crowded?

Put in a countershaft at right angles to the main line, using an

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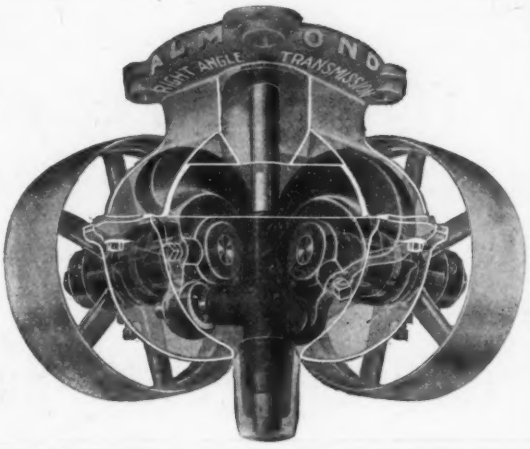
No cost of maintenance, no noise, dirt nor trouble. Use the floor space now being wasted in the end of the mill. Write to us sending details.



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BRETON COMPOUND

One of the best softeners for yarn or stock.

The peer of soaps for Saponifying Wool Oils for batching.
Economical—Softens the Fibre—Does Not Evaporate.
Does Not Gum or Clog the Cards—Can Be
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Order trial barrel, subject to test.

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ESTABLISHED 1841
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STEAM JACKET KETTLES

Guaranteed to stand 150 lbs. cold-water test.

Equal, if not Superior, to any in the market

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It Attracts Universal Attention Because It is THE BEST

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Has taken the lead in the United States, and is everywhere recognized for its efficiency. After competitive tests, lasting more than one week, THE UNITED STATES GOVERNMENT placed an order for 1,200 of

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Crabbing, Steam Finishing, Opening and Folding, Tacking, Sewing, Squeezing Machines

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OF

ATMOSPHERIC CONDITIONING

SCIENTIFIC and PRACTICAL

HUMIDIFIES,
COOLS,
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WITH

PERFECT AUTOMATIC CONTROL

The Ideal System for Textile Mills
Note Reasons Why. (Next Page)

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The Buffalo Humidifying System

A distinct departure from other types of humidifiers.
Designed with a scientific and practical insight
into textile mill requirements.

Is successful because:

¶ In Summer introduces into the overheated spinning-room *Saturated Air cooled by evaporation* from *12° to 19°* below outside temperature, and thus lowers the temperature of the room correspondingly.

¶ Extraordinary *Cooling Effect* provided by *cold, moist air ventilation* makes higher humidities *practicable* with reference to operatives.

¶ It is equally applicable to Winter conditions, combining with humidifying an economical and satisfactory system of *heating*.

¶ It does not simply *stir up* the air in the room but actually ventilates, using *outside* air in any proportion required for cooling in *Summer* or health of operatives in *Winter*.

¶ The circulation of fresh moist air effectively controls *Electrostatic Conditions*.

¶ Thoroughly washes the returned air, removing all lint and dust. *Self-Cleaning* features patented.

¶ *Downward Draft* prevents accummulations of lint, promoting uniformity of yarn, and increasing production.

¶ Compact to install. Simple in operation, requiring practically no attention. Fool proof.

Write for Humidifier Bulletin.

BUFFALO FORGE CO., - Buffalo, N. Y.

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EASTON AND BURNHAM MACHINE CO.

PAWTUCKET, R. I.

REPAIRS FOR RABBETH SPINDLES

This Happens Every Day.

Stephenson Mfg. Co.,
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The sample stick of Belt Dressing you sent us on trial has proved its worth.

You may send me by express C.O.D. 2 one pound sticks. We have only one 5 inch leather belt in use so do not need a large quantity, but all the same if we do not use your Dressing the belt slips during peak of load even with a . . . paper pulley.

Resp.,
S. A. OLIVER, Owner
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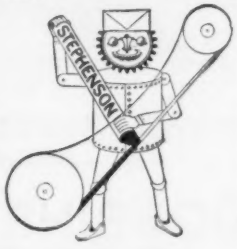
Why don't You write us for FREE SAMPLE?

and compare result of test with what Mr. Oliver says.

RED Label for Leather, GREEN Label for Rubber or Canvas.

NO ONE kind is good for ALL belts—you know that.



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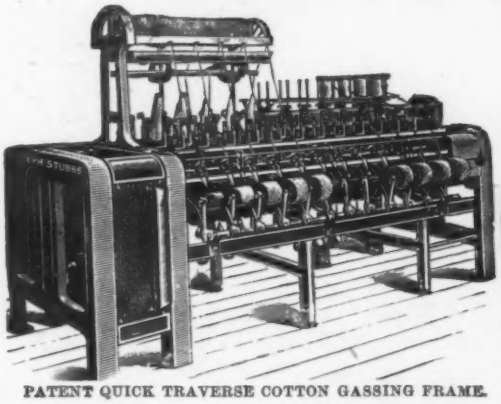

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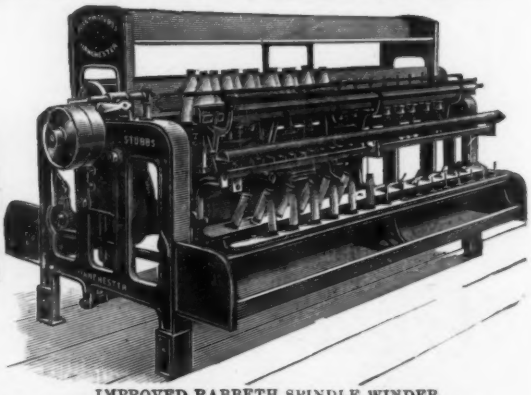

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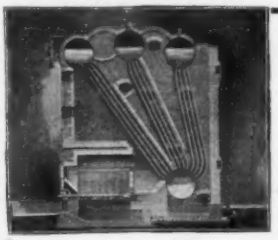

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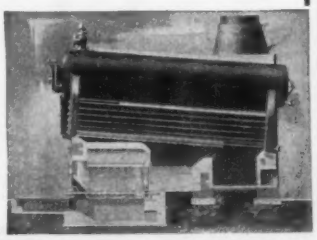

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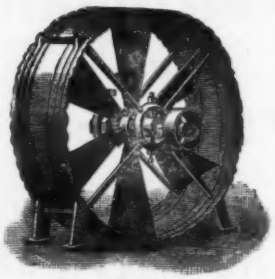

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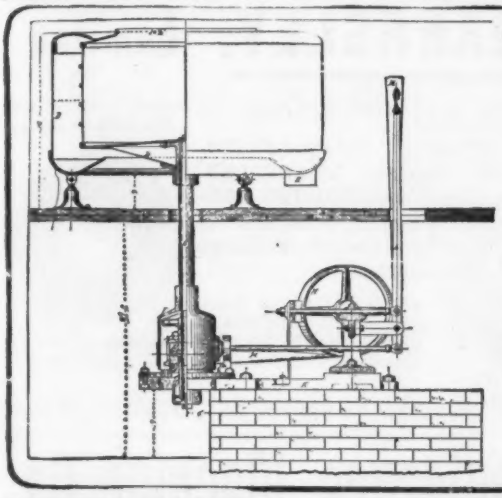

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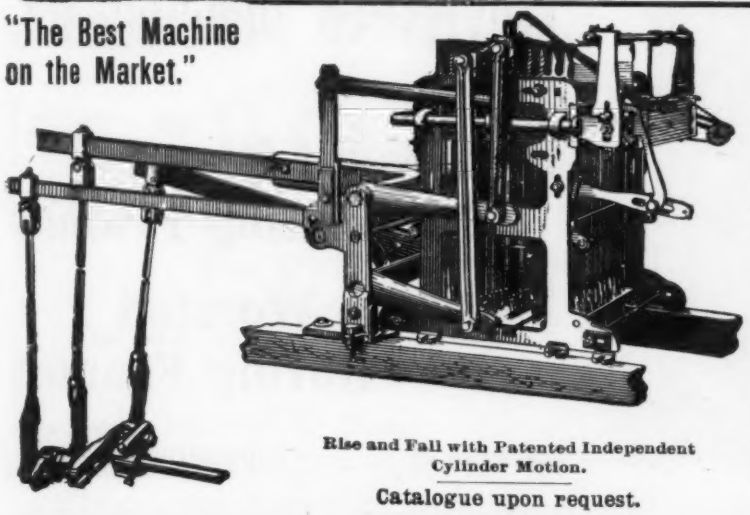

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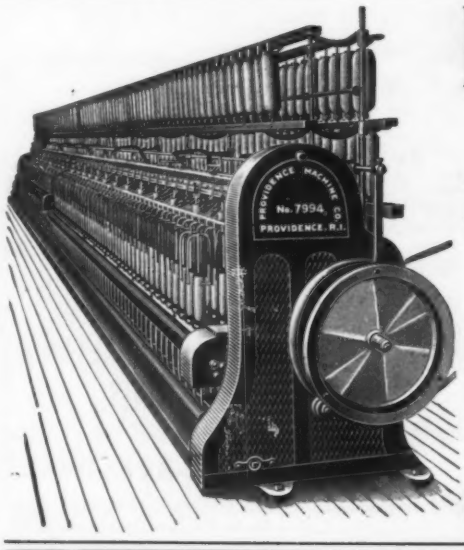

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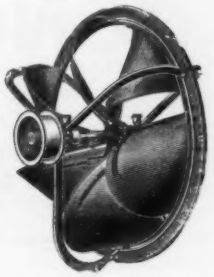

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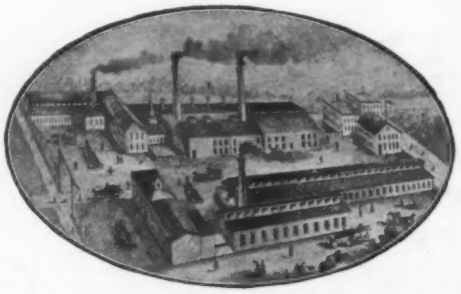

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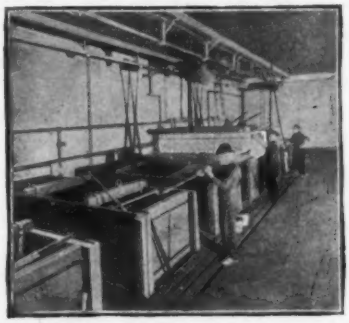

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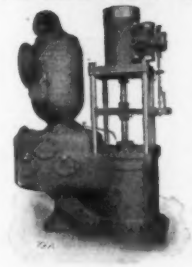

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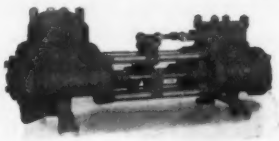

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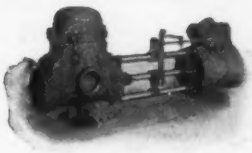

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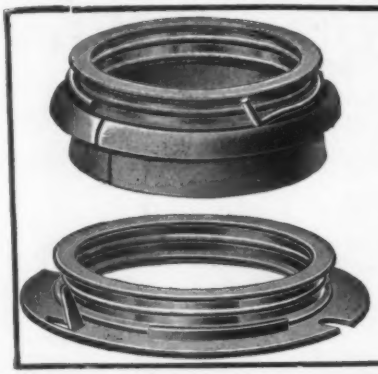

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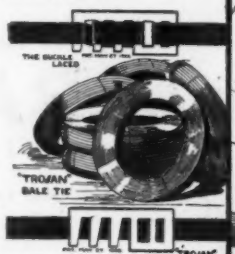

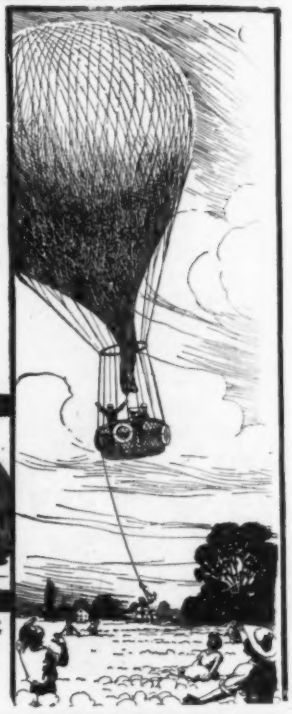

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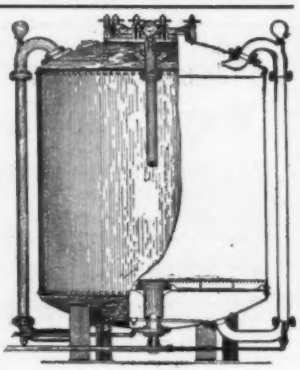

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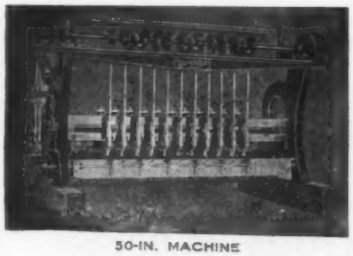

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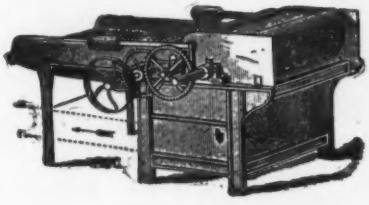

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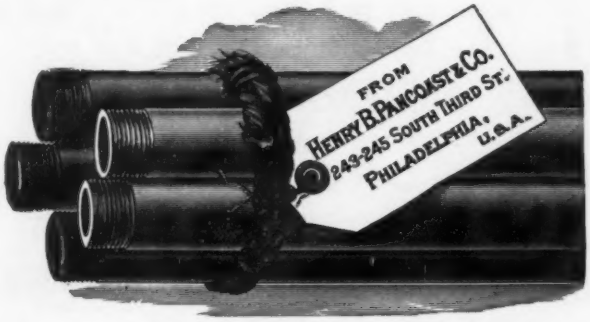

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The better light secured and the elimination of oil and dirt owing to the absence of belts and shafting are further decided advantages. A single drop of oil falling on a piece of fabric in the process of production is often sufficient to ruin the goods.

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Westinghouse Electric & Mfg. Co.

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Sales Offices in all Large Cities

"No Waste"

THE ONLY

Seamless Hard Fibre Roving Can.

The highest type of Roving Can ever produced.

Made from Pure Chemical Hard Fibre, without **seams** or **rivets**, absolutely smooth, and of incomparable durability.

Supplied with our Seamless Protection or Kicking Band, with either an electrically welded steel top ring, or a smooth turned fibre top, and with either a wooden or metal bottom secured with a seamless steel bottom ring.

Thousands of these "**No Waste**" Cans now in use and endorsed by the leading and most representative mills in the United States and Canada.

WE ALSO MAKE A HIGH GRADE OF

Cordage Cans	Comber Boxes
Oval Cans	Doffer Boxes
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Gill Cans	Trucks and Cars

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brand of oak tanned, short lap leather belting is so generally specified by discriminating buyers, because Experience has taught them that it is the best and therefore the cheapest.

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Water Softeners

Filtration Engineers

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PHILADELPHIA
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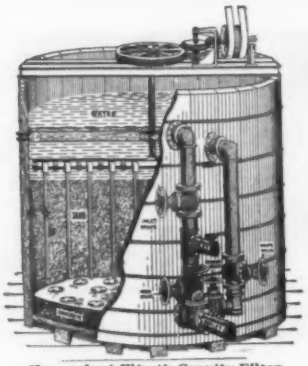

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FILTERS PRESSURE and GRAVITY

WATER SOFTENERS INTERMITTENT and CONTINUOUS

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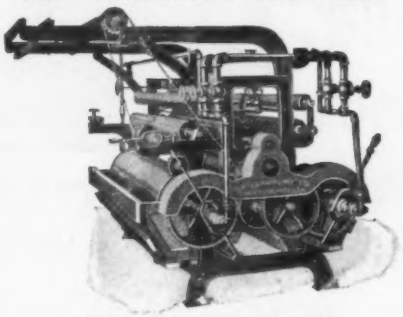

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1866 1907

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40th Annual Statement

January 1, 1907.

Capital, $500,000.00
Surplus, 1,485,457.73
Reserves, 1,931,847.29
Assets, 3,978,245 71

The HARTFORD was the Pioneer Company in the field of Steam Boiler Insurance, and it is the only company which makes a specialty of and does exclusively a steam boiler inspection and insurance business.

The HARTFORD is the only company whose entire talent and energies are applied to the study of steam, to the scientific construction and installation of boilers, and to their periodical inspection by expert mechanics.

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Sews any Fabric

Thick or Thin Wet or Dry Without Change Fine Stitch or Coarse Stitch

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Made of fine quality spring wire adjusted to the same tension. The plate or follower is made of IXXX tin plate with rounded edges, avoiding all wear on the sides of the can. A half inch hole in the center of the plate prevents suction. The spring for satisfactory service.

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No. 9.—Portable Foot-Power Rotary Sewing Machine

It is especially adapted for use in Cotton and Woolen Mills, Bleacheries, Print Works at the Printing Machines, in Dye Works, Cloth Rooms, at the Fulling Mill, Shears, Calendars, Gigs, Drying Machines, etc., or any of the different finishing processes in textile mills.

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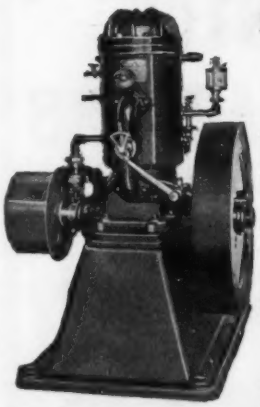

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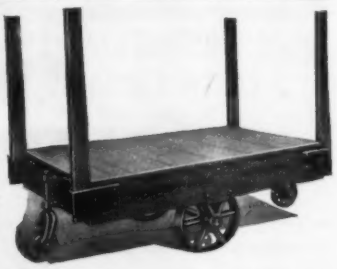

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We manufacture Steam Traps for all duties, High and Low Pressures, returning the Condensation back into Boiler or Discharging to Hot Well, Tank, or Atmosphere.

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THE BEST FIRE HOSE MADE.

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This is a fac-simile of the CROSS CREEK BONDS. Read the other side of this insert and then write the Company for particulars.

WE BELIEVE that The Textile World Record is regarded as one of the best, if not the best, journal devoted to the textile industry. We know that the CROSS CREEK BONDS are worthy of the serious consideration of the best class of investors, and our object in running our advertisement for the last few months and using this insert is to call the attention of good substantial people to an attractive and profitable investment.

At first thought the textile man may figure that he is not interested in coal and may not want to be, but as a matter of fact, there isn't any one thing he must have as surely as coal. There is not a product in the world more staple or that is so universally required. It is the basis, in fact, upon which all of our industries are built.

In this particular instance we have a large acreage, (7,000 acres), and an immense tonnage, estimated from sixty million (60,000,000) to one hundred million (100,000,000) tons, and an exceptionally large profit in the operation, (OVER $1.00 PER TON), and finally ample shipping facilities and the best market in the United States. It is admitted that the South is developing more rapidly than any other part of the United States.

Those having funds to invest are invited to communicate with the office, 609 MUTUAL LIFE BLDG., BUFFALO, N. Y., where particulars as to the bonds, the BONUS OF PREFERRED STOCK, the management, reports, etc., will be furnished.

Several years ago "Pig Iron" Kelly, Father of the House of Representatives, said,—"The South is the coming Eldorado of American adventure. As to the mountainous region of the South, it is richer in natural wealth and in advantages for the development of that wealth, it has a finer climate, better water and higher conditions of health than any region of which I have any knowledge."

Abram S. Hewitt, rightly, when living, called, "The first citizen of America," said,—"There is no corresponding region on this habitable globe which has so many advantages as the South."

The United States Steel Corporation, probably the largest and best managed corporation in the world, have recently added to their holdings the coal lands immediately adjoining us on the north.

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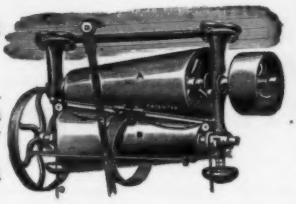
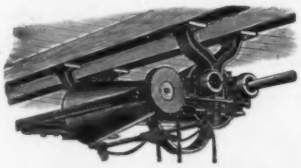
will drive your machines at any desired speed from 1 to 6 by simply pulling a cord. They are guaranteed to do your work.





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Keep scale, corrosion or mud out of your boilers and save a nice income from your repair and coal bills.

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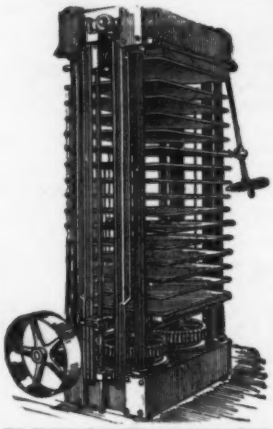

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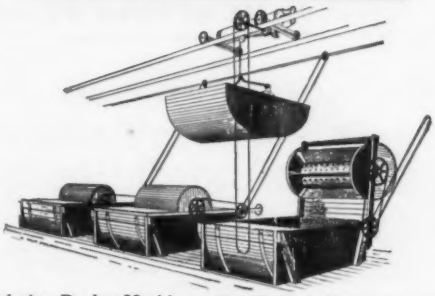
FOR WARPS AND PIECE GOODS
Bleaching Machines



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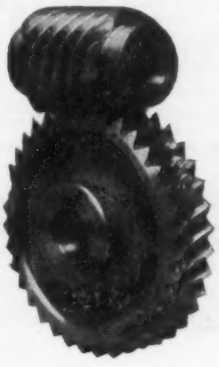

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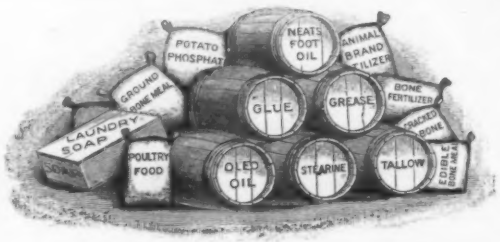

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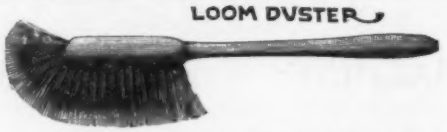

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It is made of the choicest selection of short lap oak tanned stock, and is the only reliable belt for **Dye Houses, Bleaching and Finishing Rooms** and damp places generally.

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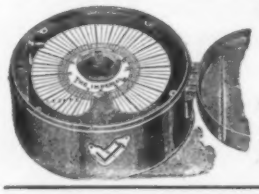

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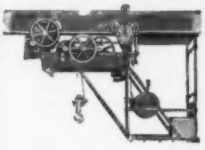
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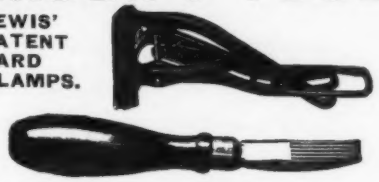
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Specialties made of Renecking, Refluting, Filing and Honing of all kinds of Rolls. Flyers Repaired and Fitted with any desired style of Pressers, Spindles Straightened, Restepped and Retopped.
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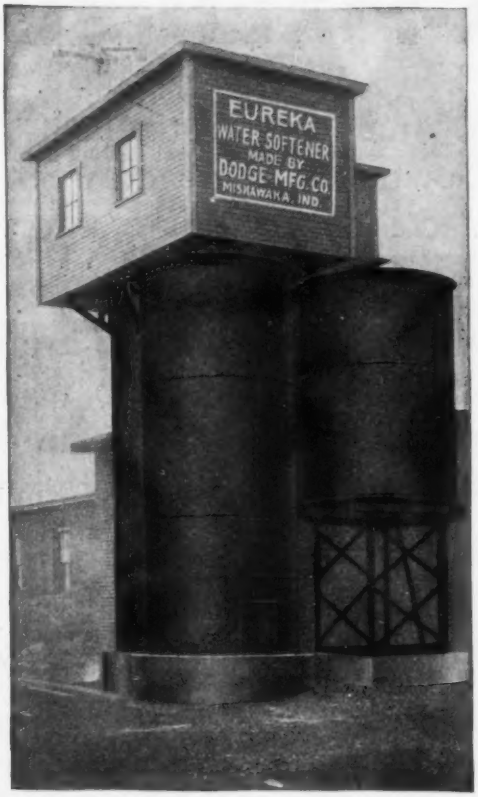

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We would like to show you how insignificant are the costs of pure and soft water, secured by use of the *Eureka Apparatus*, in comparison to the advantages and economies which it brings.

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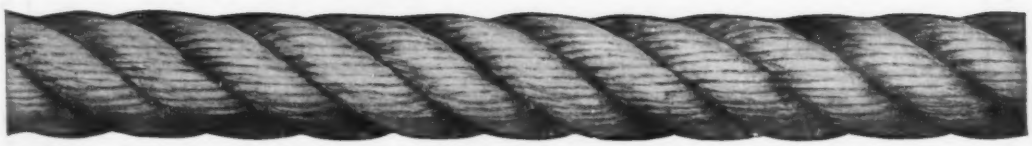

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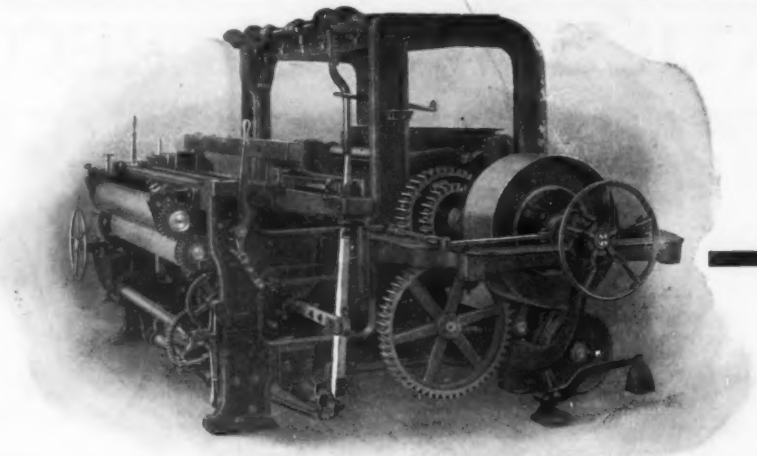

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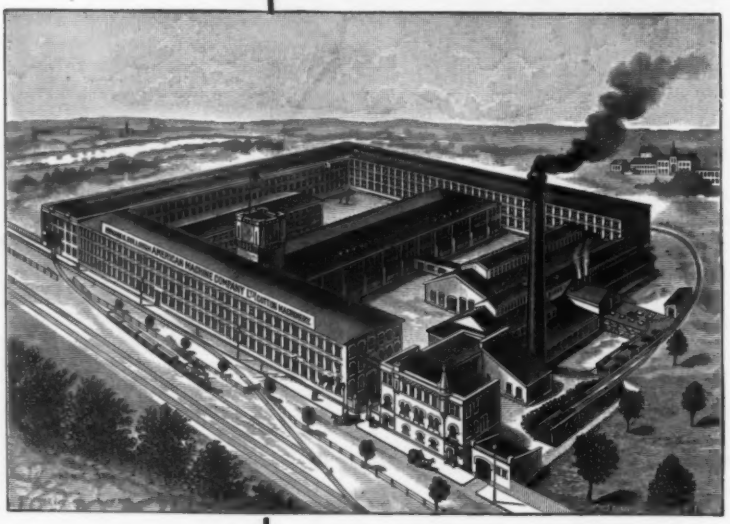

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The Textile World and Textile Record.

VOL. 34 (NEW SERIES.) January, 1908 No. 4

Monthly Comment.

The Domestic Wool Supply.

The president of the Oregon Wool Growers' Association estimates that the sheep killed in Oregon during the past year by predatory animals were valued at $250,000, and that including other farm stock the total loss for the year from this cause amounted to $500,000. Oregon is no exception to the general rule. As a result of sheep killing by dogs, wolves and coyotes it is necessary to import annually over 200,000,000 pounds of foreign wool, costing over $40,000,000, to supply the demand. It is the belief of experienced wool growers that the United States could easily increase the domestic clip to equal the present consumption if sheep killing by dogs and wild animals was stopped.

To this it may be said that certain grades of wool which can be obtained only from abroad will continue to be needed by American mills for certain purposes. Conceding that, it still remains true that until the wanton destruction of sheep now going on is stopped it will be necessary to pay millions of dollars annually for foreign wool to supply the deficiency. Efforts to counteract this evil have hitherto been confined to individual growers and growers' associations, and the heavy imports of wool prove how inadequate these efforts have been. Bounties for the scalps of the sheep killing animals have been offered without accomplishing the desired result. Recently the Oregon Wool Growers' Association has recommended that the bounty system be abandoned and that professional hunters be employed to rid the ranges of the sheep killers. Whether the new plan will prove effective depends on how it is carried out. The first requisite is money, and the local Oregon association finds it necessary to call on the national association for financial assistance before beginning operations.

It is unwise and unfair to expect the wool growers to bear the expense of preventing these depredations on their flocks. It is a work that should be paid for by the federal government, because the benefit will accrue not only to the wool growers but to the whole people. There are many striking precedents found in other branches of the textile industry for such action by the government at Washington. For example, we learn from a circular approved by the Hon. James Wilson, Secretary of Agriculture, that his department has been charged with an investigation of silk culture in the United States and is ready to

1. Send mulberry seedlings to anyone wishing to engage in silk raising.

2. Send silk worm eggs for a good start.

3. Issue instructions for hatching eggs, feeding the worms, gathering the cocoons and killing the chrysalis.

4. "Buy cocoons at from 90 cents to $1.15 per pound so long as Congress appropriates for the purpose."

The watchful care of the Washington government over the cotton industry is known to all. Area planted, condition, ginning, ravages of the boll weevil and trading on cotton exchanges, all details of the cotton business come under federal surveillance. It is not our purpose to criticise the efforts of the United States government to encourage silk raising, which the experience of several hundred years indicates, cannot be made profitable in this country; nor to criticise the efforts of the same government to foster the cotton growing industry which, experience proves, is a natural monopoly of this country. The point we wish to emphasize is that a government doing all these things should not allow dogs and wild animals to go on destroying domestic sheep and as a result force the people of this country to pay $40,000,000 a year for foreign wool.

Cotton Exchanges.

In another part of this issue will be found the report of a committee of the New York Cotton Exchange, recommending a plan for increasing the spot cotton trade of the exchange and organizing a system of warehouses throughout the South. This report is signed by seven prominent members, who on this question represent an influential party in the New York Exchange that is seeking to meet the attacks on that institution by correcting any abuses that may exist. This report is in line with the part taken by various cotton exchanges at the Atlanta Cotton Conference and their evident desire to meet the planters and spinners in discussing and correcting abuses in a business-like way, fair to all concerned. In order to get results, however, it is necessary to keep up the discussion and bring about a sentiment that will lead to definite action. The thing to do first is to decide what changes should be made; and then make them. It is very encouraging to have the members of the New York Exchange formulating plans for the reform, and it would be a result, creditable to that exchange and beneficial to the cotton trade, if the needed changes were to be made by the exchange itself and without pressure from the outside. This perhaps is too much to be hoped for. It is necessary to keep before the exchanges the fact that they are not only a part of the machinery of the entire cotton trade, but are public institutions and proper subjects of public control.

Record Profits in the English Cotton Trade.

Reports of sixty-five Lancashire cotton spinning companies show profits for the past year amounting to $4,264,849, or 34 per cent. on the share capital of $12,594,033. These mills have 7,099,672 spindles. The results of the year's business are the more noteworthy in view of the large increase in the number of spindles in Lancashire during the past few years.

Commissions on Unsold Goods.

An important decision affecting the right of a commission merchant to one-half the regular commission on goods in stock when an account is transferred to another commission house, has recently been handed down by the United States Circuit Court for the Southern District of New York in the suit of the Barnaby Manufacturing Co. of Fall River, Mass., against Clarence Whitman & Co., of New York. The plaintiffs transferred their account from the defendants to another firm in May, 1904, and in the final account rendered by the defendants there appeared a charge of 3 3/4 per cent. on $204,927, the value of the goods on hand and unsold at date of transfer. Although this was in accordance with a generally accepted custom of the trade the Barnaby Mfg. Co. brought suit to recover. The jury gave them a verdict for the full amount with interest. It is stated that the defendants will appeal to the higher court.

British Merchants' Petition the Chinese Government.

The following petition, signed by ninety-six of the leading British firms trading with China and by four British associations representing one hundred and fifty-two additional firms, was presented to Viscount Li, the Chinese Minister at London on Dec. 16th:

Whereas it is desirable in the interests of Peace and Goodwill between the inhabitants of China and the inhabitants of the United Kingdom of Great Britain and Ireland, to maintain the present good relations existing between them, and

Whereas it is desirable to maintain and to extend the already considerable trade which is carried on between the two countries for their mutual benefit, and

Whereas those trading relations are now principally based upon English Standards of Weight and Measure, and

Whereas we understand it is contemplated by His Majesty, the Emperor of China, to introduce uniform weights and measures throughout His Dominions at an early period:

Your Petitioners Submit

(a) That the Goodwill of the people of the two Countries towards each other would be strengthened:

(b) That their mutual trading relations would be increased: and

(c) That it would tend to promote general harmony and concord.

If the Standards of Weights and Measures to be adopted as the base of a uniform system for the whole of the Chinese Empire were uniform with, or multiples and submultiples without fractions of the English Standards, and they believe that these advantages would accrue for the following general reasons:—

1. The Standard of Weight and Measure at present in current use in the Commercial relations between China and Great Britain are the survival of the fittest for manufacturing and trading purposes:

2. These Standards are of almost universal application in the international trade of the world:

3. Their bases originate in the wants of the consumer and the standards are therefore the most rational:

4. There is no immutable and uniform correlation between these standards and therefore the evolving of unserviceable units is avoided:

5. The standards are readily and easily applied by the fully educated and by the less educated classes:

6. The standards are the most practical for manufacturing and trading purposes:

7. China by legalizing formally the employment of these standards would be conforming to the practise in trade with her best customers.

The following figures show the trade done between England and China last year:

Trade Between England and China (including Hong Kong) 1906-7.

Cotton Goods (including yarns)	$47,052,737
Metals (wrought and unwrought)	6,084,025
Woolens and Worsteds	5,208,243
Silk (principally raw)	3,211,959
Skins and Furs	2,907,149
Metals and Ores	2,726,654
Machinery and Millwork	2,590,638
Tea	2,396,082
Straw and Plaiting	1,125,532
Bristles	1,115,200
General	18,987,179
Total Trade for Last Year	$93,405,392

Your petitioners trust that Your Excellency will be pleased to make such representations to Your Imperial Government as will tend to secure the adoption of Standards uniform with the Weights and Measures which are at present in use in by far the largest bulk of the trading of the world.

That it may so please Your Excellency to take these steps is the prayer of your petitioners who subscribe themselves.

This petition was prepared by the British Weights and Measures Association, whose secretary, George Moores, deserves much credit for his prompt action in the matter. In connection with the petition Mr. Moores has prepared a statement showing the standards used for assessing duties under the Chinese tariff. The 485 items on which the duties are reckoned by weights and measure are classified as follows:

Picul and catty,	371	items
Yard, foot, inch, pound, ton and gallon,	113	"
Litre, (used for vermouth,)	1	"
	485	"

As pointed out in our December issue the Chinese picul and catty are each readily converted into English pounds (3 piculs equals 400 lbs.; 3 catties equals 4 lbs.), consequently all but one of the 485 items are based on English weights and measures or on weights easily reduced to our standards. This uniformity is largely the result of the preponderence of British and American trade in the Chinese market. The importance of maintaining both the uniformity and the preponderence is obvious. Among the firms that have shown their interest in the matter by signing the petition already mentioned the textile industry naturally has a large representation. Some of them have an international reputation, as for example, Brooks and Doxey, John Hetherington & Sons, Howard

and Bullough, Asa Lees & Co., and Platt Brothers & Co. The associations include the Bradford Dyers' Association, The Calico Printers' Associaton and the Fine Cotton Spinners' and Doublers' Association, The firms and associations signing this petition, which is of equal importance to the United States and Great Britain, have set an example that should be promptly followed by the American trade.

Weavers' Wages in Germany and America.

A LETTER FROM ONE WHO HAS WORKED IN BOTH COUNTRIES.

Editor Textile World Record:

In recent issues of the Textile World Record, and especially in your letter to Mr. North, you have written about industrial and living conditions in Germany and have apparently proved by your articles that the wages in that country are much lower than in America. On the contrary I will show you that your opinion is wrong in several directions. The best way to judge of this question is to give a price list which is used in the weave rooms of many German mills, and then to consider whether the different kinds of fabrics are manufactured cheaper here or there.

Most of the German mills manufacturing gents' or ladies' goods, both woolen and worsted, light or heavy weight, have the same price list, as they have united in a big association. Nearly all the mills in Cottbus, Aachen, Forst, Sommerfeld, Sorau and M. Gladbach belong to this association.

The price list is constructed on the following principle: The weaver is paid for every thousand of picks which his loom makes and which are indicated by a clock on each loom. This apparatus is fixed on the small shaft around which the box-hair runs. In some mills white or colored threads are woven in the warp and indicate every thousand picks. There are different prices for weaving woolens and worsteds, as the latter warps generally run better than the first ones. I will give you an idea of such a price list. The finished fabrics are generally 56 to 59 inches wide.

Looms for worsted and cotton warp fabrics run 70 to 90, sometimes 105 picks per minute. The pay for one thousand picks depends on the number of threads in the warp, the number of shuttles used, also on whether the cloth is plain or fancy.

Ends	Plain Weave	Fancy Weave	Shuttles	Shuttles	Cotton warp plain work
	WOOLENS.				
Up to 1800	.024	.026	.0285	.031	.024
1800—2400	.026	.0285	.031	.0335	.024
2400—3000	.0285	.031	.0335	.036	.026
3000—4000	.031	.0335	.036	.0385	.0285
4000—5000	.0335	.036	.0385	.041	.031
More than 5000	.0365	.0385	.041	.065	——
	WORSTEDS.				
All grades	.026	.0285	.31	.0335	

The price lists vary widely in American mills. I will give the prices for the weaving of a few fabrics I have worked on in New England: No. 1, serge: 2,600 threads in warp, 34 picks per inch, plain warp and weave with 3 shuttles: 3c. per yard on two looms, and 5c. on one loom to the weaver.

The German price for this cloth is .0285 for 1,000 picks. Allowing 5 per cent. for shrinkage after weaving, we find 1,392 picks per yard. .0285 × 1.392 = .0397 per yard, i. e., nearly 1c. more than the 2-loom price in this country.

No. 2. Indigo Blue for the army. In America: .084 per yard, 3,200 threads, 54 picks per inch, 3 shuttles plain. In Germany (calculated in the same way as the first), .031 per 1,000 picks = .063 per yard.

No. 3. Overcoating. 2,900 threads, 42 picks per inch, 3 shuttles plain. In America: .066 per yard. In Germany: .0285 per 100 picks = .048 per yard.

No. 4. Beaver. 4,800 threads, 58 picks per inch, 3 shuttles, cotton warp. In America: 10c. per yard. In Germany: .03 per 1,000 picks = .069 per yard.

No. 5. Plain worsted. 5,000 threads, 70 picks per inch, 3 shuttles. In America: 2-loom = .06; 1-loom = .10. Germany: .026 per 1,000 picks = .07 per yard.

No. 6. Fancy worsted. 6,000 threads, 100 picks per inch. In America: 2-loom = .09; 1-loom = .144. Germany: .0285 per 1,000 picks = .1065 per yard.

If we consider that most of the imported goods are worsteds and broad cloths, we see that the wages paid for the weaving of these goods are less in this country than in Germany. Here they are generally woven on two looms. No weaver in Germany would start two looms on such goods. On the other hand, the highest wages are paid in this country for the weaving of heavy fabrics. The price of weaving is less in proportion to the quantity of material used in them.

I want to say a few words about the living conditions in Germany which you describe in a really ridiculous and wrong way. In the first place you cannot speak of Germany in general. You quote extracts from newspapers in quite a small part of this country. I cannot say whether it is true or not that the workmen of Reichenbach do not earn more than 1.80 marks (43 cents) per day, but I can prove that, if it is true, it is a very rare exception, and illustrates a condition that is vanishing at the present time. As far as I know and as far as can be learned from the above, any good weaver can easily make 20 to 30 marks ($6.00 to $7.50) per week. I think that is very good pay, in view of the fact that life is far cheaper over there than here.

Regarding the eating of horses' and dogs' flesh, I can only say that the German workmen whom I have seen eating such food, considered it a luxury and enjoyed it as a delicacy. I have never heard that any people live generally on such food, except that I have seen it in a dramatic play called "Die Weber" (The Weaver), the scene being laid in a town in Silesia, 30 years ago.

If I consider your photographs of the extracts from German papers, of course I must believe that they are true. However, I cannot but think that some of them are taken from funny papers. In January and February some German papers, espe-

cially in the Catholic parts of the Empire, like Saxony, print so-called carnival or fasching numbers. which contain only fun and with the object of fooling the reader. I believe your extracts are taken from such papers.

I think that I have proved clearly enough that the help in Germany are not paid much lower wages than here and do not live in so miserable a condition as you describe. Your article recalls the Germany of 30 years ago. To accept it is to assume that progress does not exist there.

German-American.

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Fortunately we have official statistics showing the wage levels in Germany and the United States, which support our general contention in the most conclusive manner. According to the *Jahresberichten der Textil-Berufsgenossenschaften* for 1905 the yearly wages of 1,097,090 operatives in 21,650 textile mills throughout Germany amounted to $192,297,292, which is equivalent to 58 cents per day for each operative. From the same official source we find that 58,256 of these operatives were employed in Silesia and earned in that year $7,489,286, which is equivalent to just 43 cents a day. Thus these official statistics confirm the conclusions we drew last July from the strike at Reichenbach, Silesia, where the operatives went out rather than work for 1.80 marks (43 cents) a day.

On the other hand our Census of Manufactures for 1905 reports that 739,239 operatives in 4,563 textile mills in the United States received $249,357,277 as wages in the same year, 1905, which is equivalent to $1.12 per day for each operative.

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Textile Education.

The decision of the city government of Lawrence, Mass., to establish a trade school in that city and the appropriation of five thousand dollars, to which a like amount is to be added by the State, for that purpose mark the beginning of a new and important development in textile education. The

and Bullough, Asa Lees & Co., and Platt Brothers & Co. The associations include the Bradford Dyers' Association, The Calico Printers' Associaton and the Fine Cotton Spinners' and Doublers' Association, The firms and associations signing this petition, which is of equal importance to the United States and Great Britain, have set an example that should be promptly followed by the American trade.

Weavers' Wages in Germany and America.

A LETTER FROM ONE WHO HAS WORKED IN BOTH COUNTRIES.

Editor Textile World Record:

In recent issues of the Textile World Record, and especially in your letter to Mr. North, you have written about industrial and living conditions in Germany and have apparently proved by your articles that the wages in that country are much lower than in America. On the contrary I will show you that your opinion is wrong in several directions. The best way to judge of this question is to give a price list which is used in the weave rooms of many German mills, and then to consider whether the different kinds of fabrics are manufactured cheaper here or there.

Most of the German mills manufacturing gents' or ladies' goods, both woolen and worsted, light or heavy weight, have the same price list, as they have united in a big association. Nearly all the mills in Cottbus, Aachen, Forst, Sommerfeld, Sorau and M. Gladbach belong to this association.

The price list is constructed on the following principle: The weaver is paid for every thousand of picks which his loom makes and which are indicated by a clock on each loom. This apparatus is fixed on the small shaft around which the box-hair runs. In some mills white or colored threads are woven in the warp and indicate every thousand picks. There are different prices for weaving woolens and worsteds, as the latter warps generally run better than the first ones. I will give you an idea of such a price list. The finished fabrics are generally 56 to 59 inches wide.

Looms for worsted and cotton warp fabrics run 70 to 90, sometimes 105 picks per minute. The pay for one thousand picks depends on the number of threads in the warp, the number of shuttles used, also on whether the cloth is plain or fancy.

Ends	Plain Weave	Fancy Weave	Shuttles	Shuttles	Cotton warp plain work
	WOOLENS.				
Up to 1800	.024	.026	.0285	.031	.024
1800—2400	.026	.0285	.031	.0335	.024
2400—3000	.0285	.031	.0335	.036	.026
3000—4000	.031	.0335	.036	.0385	.0285
4000—5000	.0335	.036	.0385	.041	.031
More than 5000	.0365	.0385	.041	.065	——
	WORSTEDS.				
All grades	.026	.0285	.31	.0335	

The price lists vary widely in American mills. I will give the prices for the weaving of a few fabrics I have worked on in New England: No. 1, serge: 2,600 threads in warp, 34 picks per inch, plain warp and weave with 3 shuttles: 3c. per yard on two looms, and 5c. on one loom to the weaver.

The German price for this cloth is .0285 for 1,000 picks. Allowing 5 per cent. for shrinkage after weaving, we find 1,392 picks per yard. .0285 × 1.392 = .0397 per yard, i. e., nearly 1c. more than the 2-loom price in this country.

No. 2. Indigo Blue for the army. In America: .084 per yard, 3,200 threads, 54 picks per inch, 3 shuttles plain. In Germany (calculated in the same way as the first), .031 per 1,000 picks = .063 per yard.

No. 3. Overcoating. 2,900 threads, 42 picks per inch, 3 shuttles plain. In America: .066 per yard. In Germany: .0285 per 100 picks = .048 per yard.

No. 4. Beaver. 4,800 threads, 58 picks per inch, 3 shuttles, cotton warp. In America: 10c. per yard. In Germany: .03 per 1,000 picks = .069 per yard.

No. 5. Plain worsted. 5,000 threads, 70 picks per inch, 3 shuttles. In America: 2-loom = .06; 1-loom = .10. Germany: .026 per 1,000 picks = .07 per yard.

No. 6. Fancy worsted. 6,000 threads, 100 picks per inch. In America: 2-loom = .09; 1-loom = .144. Germany: .0285 per 1,000 picks = .1065 per yard.

If we consider that most of the imported goods are worsteds and broad cloths, we see that the wages paid for the weaving of these goods are less in this country than in Germany. Here they are generally woven on two looms. No weaver in Germany would start two looms on such goods. On the other hand, the highest wages are paid in this country for the weaving of heavy fabrics. The price of weaving is less in proportion to the quantity of material used in them.

I want to say a few words about the living conditions in Germany which you describe in a really ridiculous and wrong way. In the first place you cannot speak of Germany in general. You quote extracts from newspapers in quite a small part of this country. I cannot say whether it is true or not that the workmen of Reichenbach do not earn more than 1.80 marks (43 cents) per day, but I can prove that, if it is true, it is a very rare exception, and illustrates a condition that is vanishing at the present time. As far as I know and as far as can be learned from the above, any good weaver can easily make 20 to 30 marks ($6.00 to $7.50) per week. I think that is very good pay, in view of the fact that life is far cheaper over there than here.

Regarding the eating of horses' and dogs' flesh, I can only say that the German workmen whom I have seen eating such food, considered it a luxury and enjoyed it as a delicacy. I have never heard that any people live generally on such food, except that I have seen it in a dramatic play called "Die Weber" (The Weaver), the scene being laid in a town in Silesia, 30 years ago.

If I consider your photographs of the extracts from German papers, of course I must believe that they are true. However, I cannot but think that some of them are taken from funny papers. In January and February some German papers, espe-

cially in the Catholic parts of the Empire, like Saxony, print so-called carnival or fasching numbers. which contain only fun and with the object of fooling the reader. I believe your extracts are taken from such papers.

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special object of this school is to give to those engaged in the industries of the city the instruction and training that they need most in their daily work. Only those actually engaged in the respective trades will be eligible for admittance to the school. In connection with this new school designed to supply the special needs of the workers the ideas of Andrew S. Draper, New York State Commissioner of Education, as to how the students in the public schools should be trained for industrial pursuits, are of especial interest. His views were outlined in a recent address at Syracuse, New York, an abstract of which appears in this issue. Both the Lawrence school and Commissioner Draper s plans for public school work have this common object, to give the student practical instruction to help him earn a living in the trade he is actually in or expects to engage in.

Mr. Coates and the Cotton Bale.

Since their return home some of the Lancashire spinners who visited us last October have been talking. One of them, Thomas Coates, at the annual meeting of the Manchester Cotton Association, talked loudly about American methods of weighing and compressing cotton. His remarks have been published widely in the newspapers on both sides of the Atlantic, under such captions as "Fraud in Cotton Bales," "American Reforms Needed," and "Extraordinary Charge Against American Cotton Weighers," all being in substantial agreement with the following from the Northern Whig of Belfast, December 4:

TEN MILLION LIES PER ANNUM.

At the annual meeting of the Manchester Cotton Association in Manchester, recently, Mr. Thomas Coates, chairman of the Cotton Buying Company, made a remarkable statement bearing on the honor of the United States cotton shippers. Mr. Coates, who was one of the delegates to America, said that one of the things that impressed him was the barefaced fraudulent manner in which the sworn Government weighers in the States actually "put on" 5 lbs. per bale on every one weighed. This was not done in the case of cotton supplied to American spinners. He asked one if in the event of their exporting ten million bales in the season they would swear to ten million lies, and he candidly admitted that they would. Another loss to the British spinner was that 4 lbs. of canvas was put on every bale.

Mr. Coates is chairman of the Cotton Buying Company, Limited, of England, a company that boasts in its prospectus of having bought $150,000,000 worth of cotton, mostly American, since it was organized. Can Mr. Coates cite a single transaction in which his company, or any English spinner, has ever been defrauded of a farthing by reason of excessive tare or short weight under the rules of the English cotton trade? There is probably no organization on earth that enforces its rules more strictly than does the Liverpool Cotton Association. Under those rules Mr. Coates buys cotton by net weight, with a 6 per cent. allowance, or 30 lbs. per bale for tare, under the "cif and six" contract. If he finds that the actual tare is less than 6 per cent. he is not required to report it and pay for the difference. He is at liberty by the rules of the trade both to keep still and keep the cotton he did not pay for. But if the actual tare is in excess of 6 per cent. he can make a claim for the difference and woe betide the seller who refuses to allow the claim. He would never sell another pound of cotton under the rules of the Liverpool Cotton Association. This system of allowing for tare is not only fair, it is liberal to Mr. Coates, the buyer, and on that score he has absolutely no kick coming. Mr. Coates buys his American cotton in England under these rules, which prevent any loss to him from excessive tare, consequently the addition of 4 lbs. or 40 lbs. of canvas to every bale in America is wholly immaterial. As well might he find fault with the canvas added by "mending" the bales in Liverpool. He is protected under the rules against loss from either operation.

To be sure canvas is added to every bale. If Mr. Coates had stopped at the compress a few minutes longer last October, he would have found an explanation for this addition in the loss of tare by shortening the bands that held the larger uncompressed bale together. If he had stopped anywhere to think before he made his Manchester speech he would have found an explanation of the addition of canvas in the fact that the English

spinner claims an allowance of 6 per cent. (30 lbs. a bale) for tare, and that the American intends that there shall be that amount of tare on a bale. The American is not so stupid as to have the tare much less than 30 lbs. when he knows Mr. Coates will claim 30 lbs. Under existing circumstances Mr. Coates' talk before the Manchester Cotton Associates about tare simply means that he wants more than he pays for, something for nothing.

So much for tare.

Now as to the addition of 1 per cent., 5 lbs. per bale, to the weight of cotton in America. Mr. Coates buys his cotton by the weight in England. It has been found by experience that cotton during its passage across the Atlantic and while in contact with the fog that envelops England, gains more or less in weight. The price Mr. Coates pays for American cotton is based on this increased weight, and under the law of supply and demand is lower than if based on the weight in America before it absorbed the moisture. What is fairer under these circumstances than for the American to allow for this prospective increase in weight? This is done by adding the 5 lbs. per bale. The cost of the cotton is the same as if a proportionately increased price per pound were paid for the American weight. For Mr. Coates to claim the right to buy the cotton by the lesser weight at the lower price based on the greater English weight shows that in this case, as in that of tare, he wants more than he pays for, something for nothing. And this claim is the more remarkable because it comes from Lancashire where the cotton spinning trade stubbornly and defiantly refuse to adopt a standard for moisture in cotton when spun into yarn. They insist upon storing the yarn in damp places, sometimes over pools of water where it absorbs moisture and gains in weight, before being weighed and invoiced to English and foreign weavers. And this practice they seek to justify by the plea that the water improves the cotton fiber.

Mr. Coates is right in stating that the additions to the cotton bale of which he complains are not made in the case of cotton sold to American spinners. That is explained by the fact that American spinners buy cotton by gross weight with a limit stipulated for the tare. Mr. Coates can buy it on the same terms if he likes and has the money.

Some of us remember Mr. Coates' visit to the compress where he made his great "discovery;" we saw the negro in his presence slapping a square of bagging under the ties of every bale; we noted the remarkable self control of the weigher, who listened to Mr. Coates calling the work a barefaced swindle, and who, instead of resenting it, as many would have done, courteously dismissed the visitor with a good humored jolly; we listened to Mr. Coates as he later voiced his indignation while some of his compatriots encouraged him with "There's nowt reet aboot it" and "Aye! That's Lancashire." As we listened we recalled the rules of the cotton trade which protected the English spinner against loss by excessive tare or short weight in buying American cotton; we recalled the refusal of the English spinners to adopt standards for moisture in spun cotton; knowing these things we classed Mr. Coates' experience at the compress and subsequent comments among the most amusing and instructive incidents of an extraordinarily amusing and instructive excursion. None of us dreamed of his talk being worthy of serious consideration, and the notice it now receives is due solely to the publicity given to his speech at Manchester.

Following are two letters from men prominent in the cotton trade, replying to Mr. Coates' charges:

Warrant Warehouse Company.
Forwarding Agents.
Birmingham, Ala., Dec. 18, 1907.

Editor Textile World Record:

Your letter of December 11th, adressed to Mr. T. F. Stevenson, custodian of our plant, has been referred to me. The caustic criticism of Mr. Thomas Coates is undeserved. In so far as the criticism applies to the physical condition of our cotton bales, it is just. There is no question that the method of baling our cotton is crude and unnecessarily wasteful.

In regard to the statement that "sworn government officers in the United States added five pounds to their weights," I can only say, that in my twenty years' experience in the handling of cotton I have yet to see any statements of the weights of cotton forwarded, made by government officers. The weights of cotton shipped are furnished by the sell-

ers of the cotton to the purchaser, and such weights are guaranteed by such sellers to hold at point of destination within 1 per cent. of such specified weights.

The system of selling cotton from American to foreign countries is under what is called "cif" and "six" terms. This means that the seller names a price at which he will sell his cotton, the seller paying the freight and insurance to point of destination and guaranteeing the covering of the bale, including bagging and bands, not to exceed 6 per cent. of the gross weight of the bale. Thus a bale which weighs 500 pounds at destination is guaranteed not to have on it more than 30 pounds of bagging and ties; any excess over 30 pounds is to be paid for by the seller. If the cotton is invoiced by the seller on this side as weighing 500 pounds gross, the seller guarantees that such cotton will weigh, when it reaches the point of destination on the other side, not less than 495 pounds gross, or within 1 per cent. of its weight as invoiced. These being the clearly understood terms of sale, as established by the custom of trade over a period of many years, it is clearly evident that a foreign purchaser of American cotton figures, in buying 100 bales of cotton, which is invoiced at 500 pounds per bale or 50,000 pounds: first, that there is in this purchase 30 pounds to the bale, or 3,000 pounds of tare (bagging and ties), and that the landing weight to him will probably be less than the invoice weight by 5 pounds or less, to the bale, or 500 pounds on the hundred bales. Thus the purchaser figures, in buying 100 bales or 50,000 pounds gross of American cotton, that the net lint cotton which can be delivered to his spindles is 50,000 pounds less 3,500 pounds, or 46,500 pounds. If the cotton arrives at his mill or other point of destination with only 2,500 pounds of tare (bagging and ties), and the weight of the bales is greater than 1 per cent. less than the invoice weight, then such purchaser has to that extent received more lint cotton and paid for less tare than he figured in making his purchase, and is to that extent in receipt of a bonus on the 100 bales.

As the foreign purchaser figures on these conditions in making his purchase, so the seller on this side makes the same calculations, and as long as each fully understand the terms of the trade there is no hardship worked upon either.

The system may be crude and susceptible of much improvement, but it is the system which has been established, not by the seller in America, but largely by the purchaser abroad, and it comes with bad grace from the originator of the system to criticise those that are working under its terms. That the system is subject to criticism, possibly few will deny, but if the system is to be improved or can be improved, why should not our English friends suggest improvement rather than criticise unjustly those who are attempting to operate under it.

Now in explanation of the five pounds which Mr. Coates claims is arbitrarily added. The cotton bale when pressed at the country gin, is of an average size of about 26 inches by 34 inches by 58 inches, and has upon it six yards of bagging and six iron bands. This bale is brought into the compress points where it is sampled on both sides and in the head by cutting the bagging. When ready for shipment abroad, it is sent through the compress, where its width is reduced from 34 inches to about 16 inches, the other dimensions remaining practically the same. In order to protect the lint and cover the holes made in the bagging in sampling, strips of bagging are laid upon the edge of the bale on top of the original bagging surrounding it. The original six ties are removed and, in order to hold the bale firmly in its smaller form, eight or more iron bands are applied. The addition of the extra bagging and the extra bands is necessary in order properly to transport and handle the cotton; the additional weight of tare on this account runs from five to eight pounds to the bale, the ties weighing about 1 1/2 pounds each and the bagging, of which about three or four yards is used in the patching, weighs from 1 1/2 to two (2) pounds to the yard. It is evident that the bale with this additional bagging and ties weighs more than it did when it was covered with six yards of bagging and held by six bands. It is under these conditions that it is offered to the foreign buyer and so long as the amount of tare does not exceed that upon which he figured in making his purchase and the weight of the bales comes within the limitation of variance as understood by him at the time he makes offers upon the cotton, certainly no advantage is taken of him and he has no cause for complaint against the seller.

I am a very strong advocate of improved methods in baling and handling the American cotton crop, and I am not attempting to defend our system, but do deny most emphatically the statement made by Mr. Coates that either American sworn officers, or the sellers of American cotton are guilty or have been guilty of any wrong doing or of attempting to take advantage, when they have followed the rules and customs laid down by the trade for the handling of the American cotton crop.

W. D. Nesbitt, President.

New Orleans, La.,
December 18, 1907.

Editor Textile World Record:

The European merchants and spinners are responsible for the state of affairs to which Mr. Coates objects. It has been brought about by antiquated customs and rules still in vogue in connection with the European cotton trade, which are altogether incompatible with the modern conception of commercial transactions.

As you probably know, the terms governing sales of cotton for export to Europe are as follows:

Cost, freight and insurance, less 6 per cent. tare, 1 per cent. franchise on the landing weight.

In explanation of Mr. Coates' statement as to the customary addition of 5 pounds per bale to the actual weight thereof, I would say that this is due to the fact that our exchanges in their by-laws grant the seller an additional 3 pounds a bale on compressed cotton as an indemnity for the shortening of bands and reduction in bagging. The main reasons for this addition to which Mr. Coates objects is a clause in the c. i. f. contract, which entitles the shipper to 1 per cent. franchise on the weights, or 5 pounds per bale, allowing him to figure on this allowance as one of the items of possible profit.

to be unfair and one-sided in their business intercourse with American houses; for example, they naturally expect the full benefit of any possible gain in weight that may be shown on a shipment of cotton; on the other hand, when it comes to actual loss in weight they stand on their rights under the by-laws and tender their claim, which is usually allowed by the shippers.

It is well known that this question of losing and gaining in weight can easily work out both ways. It is usually the shipper who loses in the end because of the shameful baling system now in use. It is not uncommon to have large shortages in the weights, either through bad handling or through wilful subtractions while the cotton is in transit. I would state further that our spinner friends can be accused of the same practices in their deliveries of yarns, it being a well known fact that they are trying to make goods as much as possible the allowance made on the weights of yarn deliveries. It would, therefore, be more fitting for Mr. Coates to seek to improve existing conditions instead of calling established trade customs barefaced robberies.

The addition of extra bagging to each bale of cotton is justified by the 6 per cent. tare rule. The average bale has but 4 1/2 to 5 per cent. tare. As long as the contract calls for an allowance of 6 per cent. I do not see how Mr. Coates can blame the shipper for making up the difference with additional bagging.

Fair Play.

The Reform of the New York Cotton Exchange.

Report of a Committee of the New York Cotton Exchange, on Licensing Warehouses and Inspecting Cotton in the South.

The Committee on licensing warehouses and inspecting cotton in the South, beg leave to make their fourth report on this important subject.

This season shows more clearly than ever before that what the New York Cotton Exchange needs above all other things and must have, is a large stock of spinners' cotton and a large business in spots.

If we had these we would get a very large hedging business and the speculative business also, all that we get now, and much more, because the tendency of speculation is to seek the broadest markets where there are the largest numbers of buyers and sellers.

The present price of our futures represents the value of the kind and grades of cotton which the buyer expects to get if he calls for delivery. He expects low grades and mixed lots, hardly ever even running lots. Therefore, he usually has the added expense of breaking up the certificates and reassorting the cotton if he wishes it in even running grades for mills or for export.

If we had regularly a stock of 500,000 to 1,500,000 bales, nearly all of spinners' cotton, it would raise the price of our futures much nearer to that of spot cotton, and our future market would harmonize with the price of spots, and therefore would truly be the world's market for American cotton.

Look at the ideal position of New York for such a spot cotton market. It is the money and business centre of this continent; the third great money centre of the world. Lying right between the South where the cotton grows and the Northern mills which spin it. New York is the greatest seaport in the world. Exporters and importers are gathered here as in no other city. There is hardly a cotton or woolen mill in this country that has not a house, or agent, or correspondent to sell its goods in New York. If they have to come here to sell goods, why not offer at the same time to sell them their spot cotton here and arrange their hedges in the future market? Will it not be a great help to the spinner if he finds he can manage all three transactions, or any one or two of them here at the same time?

The endeavor of all modern business is to concentrate, quicken, simplify and economize time and money, so as to make contracts in and for the future safely and surely. If through our Exchange this can be done it will simplify business to everyone,—spinner, exporter, dealer, and planter. and encourage a far greater use of our future market for the most useful and legitimate purposes, and will bring to us a large and constant business independent of speculation. We cannot always count upon much speculation. There must be some specia!

reasons to start it. But the buying of spot cotton is constant, and if we make selling goods, buying spots and hedging with futures so easy for the spinner and exporter they will take advantage of it, do much more here and greatly increase our business.

Even the Southern mills will, to some extent, come here to buy spots and they certainly will to hedge. It is a fact that they send here considerable quantities of samples of the cotton they buy to be graded and stapled by our Classification Committee (40,000 bales this season) and they pay 15c. per bale for it though it carries no guarantee or responsibility.

The holder, commission merchant or dealer in spot cotton who has futures sold against it will sell the certificated spots to spinners or exporters by actual sample on the tables, buy in his futures at the same moment, and save all risk of change in the market from the delay of telegraphing to and from the South.

With a large stock of good spinning cotton held by many members here, instead of the mixed stock held as now by a very few, the speculator need not fear corners, as a manipulated rise in price would cause large deliveries in the current month because of the profit, but they would be of good grades which could be safely taken up because they would be readily resalable to spinners and exporters. Likewise any large tender of such cotton on contract would draw spinners and exporters here at once to get bargains.

Does it not seem absurd that when we have such a perfect system (tested by many years' experience) for doing both a spot and future business and extending it to cover the spot trade in the South, we should insist that if a member wants to certificate and sell a bale of cotton he must bring it here, where nobody really wants it, where there is not a single mill to use it, and thereby add to its cost the additional expense of handling it in this city, a useless addition, because it helps neither spinner nor planter.

If this Exchange will not keep up to the requirements of the cotton trade, the trade will leave us behind. The cotton world is demanding of us that we must represent the real trading basis, the spot prices for spinners' cotton, not prices based on "overs," low grades and speculation. We can easily do it if we will. No other Exchange has half a chance against us if we do it now.

By the natural enlargement and development of this magnificent and wonderful certificate system our Exchange will perform for the whole trade its true function, by bringing the buyer and seller together to trade upon a fair basis with the very least amount of risk or delay or uncertainty or loss.

There is not an objection to this plan that cannot be met and overcome, either absolutely, or by greater advantages in other ways.

There are improved warehouses building and to be built in several parts of the South which are asking this Exchange how they can come in under this scheme. There will be no trouble in getting good warehouses.

But some members think the South will certificate only their "overs." Nothing is easier than to prevent it. In extending the system we can extend as we please. We can put the low limit of delivery in the South higher than in New York, say, for instance, that nothing below Strict Good Ordinary shall be certificated for delivery on contract. That no certificate shall contain more than two grades, or say one full and two half grades, and these must be all contiguous grades; that white cotton shall not be put on the same certificate with tinges or stains; that no cotton shall be certificated with staple less than 7/8 inch, and none where the staple is rotten or unsuitable for spinning purposes; that each hundred bales delivered on contract shall not contain more than three contiguous grades.

If the holder of the certificate wishes his cotton shipped and has no one to attend to it, the warehouseman will. On being licensed a regular charge for shipping cotton can be agreed upon with the warehouse just as easily as for storage and labor. The number of points to be allowed for freight and charges from each place to New York can easily be fixed by a committee for the season, as freight rates practically do not vary in the South. Provision can be made

for revision of these allowances in case of any important change in mid-season, but such changes are very unlikely.

As planters, and the South generally, are much richer than they used to be, they will hold cotton, when prices are unsatisfactory to them much more than they have done in past years. If we license reliable warehouses and give certificates of grade, we will provide all holders of cotton with the means of borrowing money on it such as they have never had before. Many foreign banks prefer merchandise as collateral to stocks and bonds. Those which have agencies here will readily lend upon such storage receipts and grade certificates, and this will enable the home mill or the foreign mill, the exporter and the dealer to buy the cotton they want and hold it in the South at low rates of storage and insurance, borrow money from their home or foreign bank agency, and have it shipped to them as needed.

Our Exchange will get the future transactions based upon this and the sale of spots also. The whole thing can be done in New York without trouble, delay or risk. These facilities will cause much larger stocks of cotton to be carried, because they can be so easily sold, or, if necessary, delivered on contract.

Carrying large stocks of spinners' cotton and becoming the big spot market of the world, we shall get all the hedging business based upon this stock and the dealings in it. The speculative business will come here too because here are the largest number of buyers and sellers and our future prices will then be based upon spinners' cotton, as they cannot be said to be now.

The establishing of such a spot business here will answer and entirely dispose of the accusations against our Exchange that it is not a safe place to hedge, that our business is mainly gambling, etc., etc. It will soon be realized that this Exchange has become of the greatest use and benefit to the South and the North, by facilitating honest dealing in good cotton, and by detecting and preventing the delivery of dishonest bales and grades.

COLLATERAL.

We assert that there is in the world only one collateral superior to cotton—gold. No stocks or bonds or any form of securities have such a world wide market as cotton. Nothing can be so readily sold in so many markets at a very small concession from the market price. Nothing can be immediately sold for near or distant future delivery on so many exchanges in so many countries as cotton. Two guarantees are necessary and cotton will soon take its rightful place as the best collateral in existence. The lender wants to be sure, first, that the bales are where the warehouse receipt says they are; second, that they are of the grade stated in the certificate. Then he will lend the money gladly. If our Exchange will furnish these two safeguards, the lender will say to the borrower, "Get your cotton warehoused and certificated by the New York Cotton Exchange and I will lend you the money. I will then know what and where the cotton is and if I need to realize to secure myself I can sell it at once on the New York Cotton Exchange."

Can any member fail to see what a commanding position for all business this will give our Exchange?

SAVING OF EXPENSE AND LOSS.

When cotton has been examined and certificated in the South it will soon be accepted on our certificate everywhere without resampling. This will be a great saving, especially to the foreign spinner, for now the bales reach him with much of the bagging torn off and the cotton ragged and dirty, so that in high grades a good deal has to be picked off at just so much loss before he gets at the quality he bought. The bagging is cut so often in sampling that in shipping it is often torn to shreds and the cotton exposed to loss and damage by contact with other things and by being rolled in the dirt.

If with only the original sampling cuts carefully mended the cotton can pass from hand to hand by certificate only, how much can be saved? Certificated cotton can be sold not subject to reclamation. The spinner, both foreign and domestic, will prefer

this. He wishes to get a certain grade and quality to turn into goods, not something short of this on which he can make claims. He wants good cotton, not bothersome claims. The exporter in like manner will be able to ship and sell certificated cotton free from reclamations and save himself from claims and loss.

If cotton bales can be delivered to the steamer in really good condition with the bagging sound, uncut and covering the bale, it can be delivered at port of destination in much better order. If our bales are properly covered with bagging they can be delivered in good order, as the India (and Egyptian) bales are. India bales come to Europe or go to China and Japan and arrive in almost perfect condition, often with hardly a cut or tear in the bagging, and the cotton underneath clean and ready for spinning use; the contrast with our bales is very great. One of our rules for certificating in the South should be that no bale can be accepted unless the cotton is clean according to its grade, free from outside or country damage, and in good order. This would be an arbitrary or impossible rule in New York because cotton has to travel so far and is handled so much before it gets here. But it will be no hardship in the South because the cotton comes into the towns from the plantations to the compress and from the compress can pass direct to the warehouse, clean and in first-class condition.

We must not forget that very earnest efforts are being made in many parts of the world, especially by England and Germany, to raise cotton; so far without much success except in India, Egypt and Russian Central Asia. But in all these countries and wherever else it is tried, the packing is much better than ours, and therefore is that much better for the spinner. Is it not the purest and simplest wisdom to sell our cotton to the spinners of the world in such condition that they will be perfectly satisfied with it and will be loth to run the risk of buying elsewhere? Our Exchange can do this and be a great blessing to the honest planters, dealers, spinners and exporters, and a thorn in the side of the dishonest ones. Honesty and fair dealing win in the long run when they have a fair chance, and our Exchange by adopting this system will give them a fair chance and will handicap the others. To enable the South to get the best prices for their cotton and borrow money easily and cheaply to carry it, will surely make our Exchange a friend and a helper instead of a supposed enemy.

The great object to accomplish is not to deliver large amounts of cotton on contract, for it is doubtful if the spinner will ever expect to supply himself by taking delivery in this manner. It is too necessary to pick out just what cotton he needs to take the chance of getting the exact qualities on delivery. But the object is to make New York, as formerly, the big spot market where the spinner can come and with ease do everything he needs in one market himself, instead of having to work in three or four at arm's length. He can take a trip to New York and contract to sell his goods, buy his cotton by actual guaranteed sample, leave it stored in the South till he is ready for it, order it shipped up to his mill, all or any part at any time, by any route he chooses, buy and sell his future hedges, and borrow money on his cotton if he wishes to carry it in the South.

Of course, deliveries on our contracts cannot be authorized in less than a year, but this plan can be put into working order in a few months to revive and bring the spot trade here again. It will not cost much to make the trial, and the end to be gained, a large, lasting, constant business in spots, hedges and speculation is worth the venture.

Plan.—Choose a few prominent cotton centres in the heart of the cotton growing districts, such as Augusta for upland Georgia and Carolina cotton (the mills there will be buyers also), Columbus, Ga., for southern Georgia cotton (and mills also), Montgomery, Ala., for blackland, canebrake and upland cotton; Vicksburg for the bottom land and "bender" cotton, Shreveport for Louisiana and east Texas cotton, Houston and Waco for southern, southwestern and central Texas, Dallas for northern and central Texas and the black belt, Little Rock for Arkansas, Memphis for all that country. Here are only nine places but

they represent all the best kinds and largest yields of cotton and are all well-known cotton centres. If one or more good warehouses wish to be licensed and will comply with the requirements as to safe storing, insurance, bonding, etc., etc., license them and start the system.

Unless the business warrants it we need not have inspectors at each place, within certain limits our inspectors can travel about and go where needed.

Of course, all samples must be sealed and come by express to New York to be classed by our Classification Committee. If the business grows beyond the power of the Committee to attend to, enlarge the Committee.

To say that we cannot get honest inspectors in the South is sheer nonsense, when we know that business of almost all kinds has agents or branches in the South. There are plenty of honest men who will be glad to get such positions, and our system of licensing and bonding will make us safe. The risk we take is not a great one. It is a very moderate one. We are really doing an insurance business with small risks. We merely guarantee that a bale of cotton which our own employes have sampled, examined and classed will remain of that grade for a year, or if it falls below we will pay the difference. We do not insure against total loss, only against differences in value. What is our risk compared to that of fire insurance? or marine insurance? or title insurance? where for a small premium the insurance lasts until the title is transferred, a lifetime or more. It is a grand field for a good company to take up. Our Exchange can do it because our classing is a standard recognized and trusted by the cotton world. We have the tested system, organization, capital, experience, reputation and past success. All we have to do is with care, judgment and discretion to stretch out our hands and grasp this grand business.

Mr. McColl, president of the National Association of Cotton Manufacturers in his recent address on April 24th advises establishing a cotton exchange in New England, especially for spot cotton, to bring the planter and spinner nearer together, and to have fixed standards of grade and sworn classers. We have all these and a working system tested by years, but it is tied down to a small number of bales of mixed lots brought to New York because they are hard to handle elsewhere. But now extend our system, certificate in warehouses in the South even running lines of grade and also of staple cotton, display these samples in New York and give the spinner just what he is asking for, with the extra advantages of a guarantee of the grade, of buying where he sells his goods and hedges his business, and in addition he can take the storage and grade certificate and readily borrow money upon them here or from his home bank. Where would the proposed New England Exchange be with such a competitor?

If you go to any great Southern market as Memphis, New Orleans, Galveston, etc., you will see large lots of cotton of the various spinners grades, inspected and classed out in even running lines of single grades ready for purchase by spinners or exporters. We used to see these in New York years ago, but we do not now, it does not pay to send them here. But it won't cost much to send the samples here and we can sell the cotton to better advantage stored safely in the South than if stored here in New York.

Consider also that the examination of the bale can be very thorough in the large yards and sheds of the Southern warehouses, and as it will often be done just after the bale has come from the press, the bagging will have only the examination cuts carefully mended instead of the many others which it has when it reaches here.

As the main object of certificating in the South will be to sell the spot cotton to spinners and exporters on the merits of its even running guaranteed grade and good staple, rather than to deliver it on contract, it follows that that kind of cotton will be offered for certification, and the irregular lots and "overs" which are sent up here for contract delivery will not be certificated there.

There is no reason why we should not certificate even running lines of every grade (and staple if wanted) down to ordinary, so that every buyer of spot cotton could get just what grade he wanted. But of course

these low grades could not be tendered on contract. To prevent all mistakes the grade certificates for such cotton should be printed on paper of another color and plainly marked "not deliverable on contract."

With all these advantages, spinners will seek to join our Exchange (just as brokers and dealers do now) and as the export business grows they would meet upon our floor the cotton sellers and the export buyers. Will not drawing spinners into our Exchange insure to us a large amount of new business?

Let the New York Cotton Exchange rise to the new demands of the present as it has met those in the past. Let us not shut our eyes to the real foundation of all cotton business, the vast spot trade; let us secure the great share of that to which we are entitled, and all the rest, the hedging and the speculative business will come to us by the natural laws of trade and human nature.

STYLE SUGGESTIONS FOR WOOLEN MANUFACTURERS.

While a few lines have been opened the general attitude is one of waiting. The trade is not ready to place orders and anything taken now will be in danger of being cancelled later. A great many buyers have cancelled spring orders not because they do not or will not need the goods, but simply with the idea that they can reinstate these orders later at a lower price.

It is the impression of many agents that with the curtailing of production, these clothiers will not be able to satisfy their wants at a reduced price.

The opening is also delayed by the agitation of the agents and Commission Merchants for shorter terms. Many of the firms which started their career in the woolen business, have become very wealthy. In order to use their surplus capital, they have gone

FIG. 1.

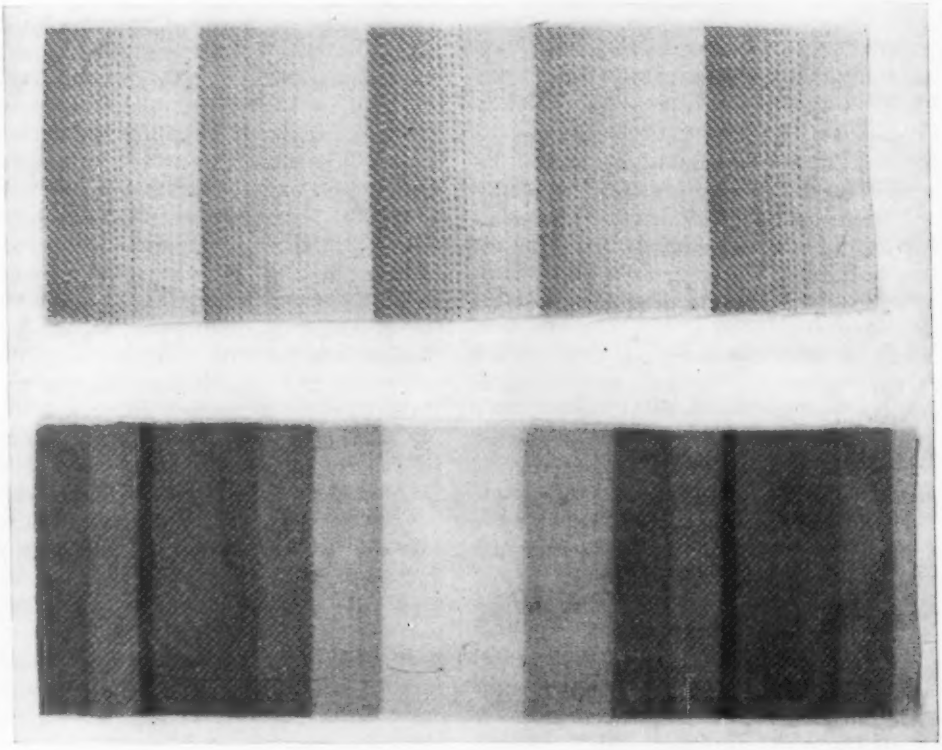


FIG. 2.

into the banking business, and have financed all kinds of business. In this banking business they have been able to turn their money over four and five times a year and made twenty to twenty-four per cent. and higher. It now comes to a period when people desire a little longer time, and many of the large houses have tried to cut the terms down. Most of the orders are taken on the basis of seven per cent. off, four months from July first, these terms make it so that they can only turn their money over about once a year. Efforts have been made to cut the terms down to sixty days from delivery at the outside.

Many of the large commission houses are keeping their departments from taking orders because they have been advised that no orders taken on the July first basis will be checked.

On the other hand some houses are willing to do all they can to get business and are giving specially long accommodation to their customers.

There is, however, a decided improvement in the general feeling and soon after January first all lines will be shown.

There has usually been a well defined interval between the taking of overcoating orders and suitings, but this season both lines will be shown together.

In 1894 after the panic of 1893 the general opening did not take place until the 23d of January and indications this year point to an opening equally late.

Some of the Western mills are showing their lines, one of these the Brickner Woolen Mills Co., of Sheboygan Falls, Wis., are showing a fabric similar to one they had last year, but very much improved at $1.02 1/2 against last year's $1.05 price.

Some of the cheaper lines have also been opened but very little business has been done.

The dress goods business is also very quiet. The principal business is being done on fancy serges and broadcloths. The serges are made in different widths of herringbone and in the shadow stripes, which are produced by using a left hand twist for one stripe and right hand for the other. These are made in fancy colors, light blues, browns and tans.

There is also a demand for light colored stripes in various widths. Figs. 1 and 2 show samples of these styles that have sold well in imported goods. By selling well is meant the placing of sample pieces, for it is from these that the bulk of the business comes. The manufacturer who may produce the popular foreign styles will get the

FIG. 3.

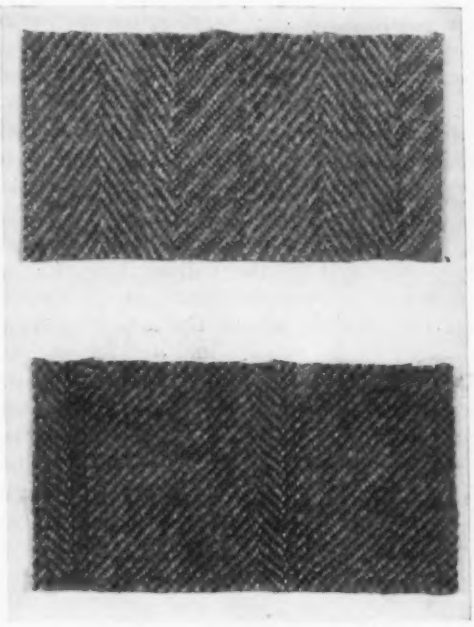


FIG. 4.

orders, for the garment maker cannot wait for the goods to come from abroad.

These stripes can be made in various widths. For shaded effects the general shade should always be the same tone in each stripe only each one a little darker, but the same degree of darkness of shade between each change in the stripe. These are made in shades of tan, blue, green, red and all bordering on the pastel shades.

The sample at Fig. 1 is an example of a shaded stripe, showing a rainbow effect. this should be made in contrasting colors. The sample at Fig. 2 shows a broad stripe effects which is very striking. The beauty of these stripes is obtained, however, only by a careful harmonizing of the colors, which in all cases should be delicate. Greens and

tans combined produce very striking effects if the pastel shades are used and these are what are in demand.

There is also a large use of silk, principally for the "Rajah" knotted effects in blues bordering on a Copenhagen blue, also in tans, greens and the general run of pastel shades, the general tendency being toward lighter shades.

Fancy broadcloths in stripes, checks and plaids are selling and in these as in the lines mentioned light shades are in demand.

There is also a demand for plaids in the cotton weave dress goods in all wool and in cotton mix goods.

In the woolen goods market there is little demand at present except for light weight overcoatings. Figs. 3 and 4 show samples of two of the best selling lines. Fig. 3 is sold by Deering, Milliken & Co. at 97 1/2 cents, Fig. 4 is sold by the Gilbert Mfg, Co. at $1.22 1/2. These are made in the oxford and tan shades, about the same class of coloring as are usually sold in coverts.

Coverts are also selling in fancy stripes to both the cloak and suit trade and the men's wear trade, the principal lines are those shown by Allen, Lane & Co. at $1.27 1/2 and James Talcott at $1.57 1/2.

TRADE SCHOOLS.

From an address by Andrew S. Draper, New York State Commissioner of Education.

It seems clear enough that we are about to have a new class of schools in our system of public education. Provision must be made for schools which teach trades and also for schools of a more general character for those who leave the elementary grades to work in the stores and offices and factories. The school age must be extended, and the schools must keep hold of children until they are fitted to begin some definite employment. These schools must be open at times which will allow pupils to attend them and also engage in regular work, and employers must plan so that young employes may attend school at definite hours. The public school system must support the industrial as well as the professional activities of the country.

Not more than one-third of the children who enter the elementary schools in the cities of this state remain to complete the course. Only about one-half of them remain till the end of the fifth grade. The greater number drop out in the middle of the course because parents are indifferent, because the schools do not fit the child for definite work, because of the public indifference to attendance laws, because the age at which the law lets them leave the school is reached before the simple work of the school is done, and because the work of the schools is not up to the ages of the pupils.

If the elementary schools do not have too many studies—about which I am skeptical—they consume too much time on what they do have. There are too many grades of books in one subject, and too much fanciful exploitation and illustration, too many methods in the teaching.

The work is not only too much attenuated, but it leads almost exclusively to professional and managing vocations, if it leads to anything that is definite. The business of the teachers is to fit for the grade above, and that means work that is mainly literary and leads to intellectual employments. Even the manual training schools are sustained on the ground that they are necessary to intellectual vigor and balance; if they lead to any definite thing it is to one of the engineering professions. The teachers tell the pupils that they may gain any place that they strive for, that they will be of little account unless they are doctors, or lawyers, or engineers, or captains of something or other. There is very little in the school system which makes for ambition and skill in work with the hands. There is much in it which makes for inefficiency and for misfits between adaptation to work and opportunity in life. We are alarmingly profligate of boys and girls.

We are not only profligate of boys and girls, but profligate of resources. The very abundance of our materials has delayed the day of reckoning. It has come in other countries sooner than here. Doubtless it has been met in other countries more quickly than here, not only because the individual expectancy is not so great, and the individual temperament is not so buoyant as here, but also because the dearth of material

resources has compelled attention and the attitude of the government may be more easily determined and at once becomes more decisive than here. England, France, Switzerland, Scandinavia, particularly Germany, and even Japan, are making up for limited resources by exact and untiring attention to the training of boys and girls to make things and do things with their hands.

In the last twenty-five years the German exports of manufactured goods have increased more rapidly than those of the United States, notwithstanding our marvelous growth in population and in territory occupied. Men and women who can do things, who love to do things with their hands, and not mere lands, and mines, and forests, are the main factors in a nation's material prosperity. Nor is that all, because the ability to do things is the price of the diversified happiness and the moral health of a people.

The old system of apprenticeship has disappeared from this country. The corporation is too intent upon dividends to be bothered with boys who are not content to become a mere part of the machine, and the labor organization is apprehensive about the effect of more workmen upon the scale of wages. We have come to the point where it is manifest enough that if millions of American boys and girls are to have their fair chance we must establish new public policies to give it to them; if anything like a desirable number are to become good workmen, the schools must train them for it; if we are to be just to the rich and poor alike, if we are to let public policies give equal support to all of the common interests, and if we are to have the conditions which are precedent to the moral and intellectual worth of men and women, we must establish in the educational system a just balance between the interests of those who are to work with their heads and those who are to work with their hands throughout the country.

Any plan to accomplish it must be radical and for the present tentative. My suggestions may be briefly stated as follows:

1. Reduce the time in the elementary schools, lower the compulsory attendance age, and aim to get the child to the end of the elementary course at fourteen.

2. Go on with the development of manual training and technical high schools.

3. Establish schools for teaching trade vocations, to begin at the end of the grammar school course and continue three years.

4. Let the trade school be open both day time and evenings.

5. Make our evening schools much more general and much better, and adapt them to youth who are employed through the day and are not learning a trade. Call them "continuation schools." Let the work be of a general character, and go perhaps half way through the high school course.

6. Let attendance at the trade schools or the "continuation schools" be in the afternoon or evening, and from four hours up to as many hours a week as the pupil can give.

7. Let the work in the trade schools be adapted to the industries of the town. Establish a school in any trade for which there shall be a reasonable demand. Do everything to gain the help of the appropriate labor union.

8. Teach the trade schools by artisans who can teach, rather than by teachers who work with their hands.

9. Avoid extravagance. Palaces are not needed. Let the place have the appearance and the atmosphere of a shop quite as much as of a school.

10. Avoid much bookishness. Some of it is desirable. But give pupils reading for their homes and discuss it at the school. Let it relate to their work and to the history and accomplishments of the trade.

11. Extend the school age to seventeen. Keep track of every child until that age is reached. Require employers to arrange their affairs so as to accommodate the intellectual and industrial demands of the schools upon young employes.

12. Do not assume that any school is to turn out finished workmen, but only that they are to train youth in the fundamentals of a trade so that they may be guided into something which they may do profitably and with experience may do it well.

13. As the child comes to the end of the elementary school, at an earlier age than now, expect him to choose whether he will go to the high school, to a trade school, or to work, and if he goes to work expect him

to go either to a trade school or a continuation school for certain hours until he is at least seventeen.

14. Let the trade school be supported by the town, given substantial state aid, and managed by the school board as a part of the public school system.

15. Meet all demands on the part of girls as well as on the part of boys.

Of course all this is tentative. It is all to be thrashed out in discussion and worked out in experience. We are breaking out new thoroughfares. It must not be overlooked that we have exploited the fundamental principles of our democracy in our politics and in our religion much more completely than in our education or in our industries. The application of those principles to our training and our work is now to be pressed to conclusions. When we do that, and not before, we shall assure the free American chance to every one and we shall give a new interpretation and a new power to the essential factors of our common life.

THE LAWRENCE TEXTILE SCHOOL.

In the October edition a history of the Lawrence Loomfixers' School was given and it was suggested that this school be started again and be made the nucleus of a public textile school. During October classes were formed in the Loomfixers' School in designing, weaving, loom construction and mill arithmetic. These classes have been largely attended and even on stormy evenings hardly one student would be absent. It was surprising how much interest the workers showed in this school. Committees were appointed from the Board of Trade made up of mill agents and manufacturers, from the Textile Council made up of operatives, and from the Central Labor Union. After many meetings this joint committee decided to go before the city government and ask for an appropriation of $5,000 and then ask the Commission on Industrial Education for an equal amount under the Massachusetts law (chapter 505) providing for industrial education.

On Monday, Dec. 16, the city of Lawrence voted unanimously to appropriate the money needed to establish the first industrial school in the state under the State Commission on Industrial Education. The joint committee of the Board of Trade, Textile Council and Central Labor Union had fully endorsed the plan and appeared before the city council along with a large delegation of mill workers and demanded an opportunity for industrial education. Representatives of the textile operatives of the city declared that thousands would welcome the opportunity of acquiring the skill and industrial training necessary to enable them to earn higher wages and obtain promotion.

The Lawrence school will at first be an evening school for those already engaged in the trades, and it is hoped to start the school with the Loomfixers' School as a nucleus at the beginning of the new year. This is the beginning of a new phase of education namely, education for the worker adapted to meet his daily needs. The courses will be adapted to meet the immediate requirements of the students. The problems will be the problems from the mill. In this way the school will be in touch with the industries. The aim is to make better workingmen. Most of our evening schools are on too high a plane to meet this particular need. They attempt too largely the taking of men out of mills and shops and putting them into offices or positions of mill agents rather than improving their condition while in the mill.

Chloride of Lime.

Editor Textile World Record:

Please explain how chloride of lime is made, with what substance adulterated, how detected and what the full strength should be. Also state the difference between the English and German product.

Six Cord (947).

An article in response to this inquiry appears in another part of this issue.

Electrically Driven Mill.

Editor Textile World Record:

Can you give me any information regarding the number of mills in the United States driven by electric power? Detroit (941).

The manager of the mill power department of the General Electric Company at Boston writes us as follows in regard to this inquiry:

"I have not before me a record of the apparatus furnished to textile mills by other

concerns. Our company has supplied apparatus to about 380 textile mills, the motors aggregating approximately 200,000 h. p. This represents about 13 per cent. of all the power used in the textile mills in this country. From my knowledge of the business secured from other concerns, I assume that possibly their sales would be covered by 50,000 h. p. of motors, so that approximately 17 per cent. of all the power used in the textile mills in the United States is supplied through the medium of electric motors."

Sidney B. Paine.

THE QUESTION OF CONDITIONING TEXTILES.

BY LEO PINAGEL,
Director of the Public Conditioning House at Aachen, Germany.

Textile Colorist 1908.

In Das Deutsche Wollen-Gewerbe.

The German association of worsted combers and spinners having endorsed a method of conditioning worsted yarn, which has been in turn adopted by the various German conditioning houses, a discussion of the question of conditioning is now of special interest. The first wool conditioning house was established at Reims, in 1856; today France has similar establishments at Amiens, Fourmies, Mazamet, Reims, Tourcoing and Roubaix. After a lapse of six years Belgium followed by building a public conditioning house at Verviers. In 1891 a conditioning house was built at Bradford. The Aachen conditioning house, built in 1888, was the first to be established in Germany. Others followed at Berlin, Cassel, Cottbus, Chemnitz, Gera, Greiz, Leipzig, Poessneck and Sommerfeld. The conditioning of wool was also taken up in the silk conditioning houses of Crefeld and Elberfeld, which had been in operation since 1844.

The following statistics of the business done by the German conditioning houses furnish proof of the need of their facilities. The French conditioning houses last year handled 262,000,000 pounds of textile materials of which 134,000,000 pounds consisted of worsted top. In Germany every comber conditions his own product; in other words, he determines the commercial weight. A much better plan, however, is that followed in foreign countries where the commercial weight is determined by public conditioning houses. About 48,000,000 pounds of worsted and woolen yarn passes through the French house annually. Verviers conditions about 3,300,000 pounds of worsted yarn. It is but a short time since there were many in Germany who claimed that the conditioning of this material was unnecessary, a claim that has been maintained by German manufacturers to their own loss.

"Figures prove!" A few examples will show the value of conditioning worsted yarn and make it certain that the establishment of conditioning houses is very important. Of the 88,000,000 pounds passing through the conditioning house at Tourcoing the last year, 22,000,000 pounds consisted of noils. Mazamet conditioned about 26,000,000 pounds of wool. Verviers exceeded this by handling 36,000,000 pounds of wool, noils, etc.

For a long time the trade erroneously accepted the idea that conditioning was profitable only for such valuable material as silk and was not necessary for wool. This error is all the more apparent today when a material as cheap as cotton is handled in the French conditioning houses, 18,000,000 pounds of cotton and flax having passed through the Roubaix and Tourcoing houses during the last year. In view of the well-known conservatism of the English the rapid development and growth of the Bradford conditioning house is especially significant. This establishment has reached the third place as regards size in the sixteen years since it was founded. Last year Bradford conditioned 65,224,258 pounds of textile material. It made 124,643 tests of the moisture in wool and worsted top and noils, 2,828 tests of the oil in the same materials, 1,267 tests of samples of wool, worsted and noils, 10,128 tests of yarn for moisture, size, length and strength, 4,722 analyses of samples of cloth and yarn, and 2,282 tests of government goods, a total of 145,870 tests. This is a striking exhibit especially when compared with the work of the German houses. The Aachen establishment stood at the head with 2,200,000 pounds of material, Cassel came next with nearly 2,200,000 pounds, of which half consisted of paper stock, then came Leipzig with 1,300,000 pounds.

The question arises why foreign countries are so far ahead of us in this respect. In 1871 the German worsted spinners at a meeting in Leipzig petitioned the Imperial Chancellor for a law defining the standards of moisture in washed, scoured and combed wool, noils, worsted yarn and woolen yarn. A year later the German Wool Association presented a petition to the Chancellor for the establishment of an official conditioning house to determine the legal amount of wool material in grease wool. The all-wool and half-wool industries also recommended official control of conditioning. It would have been much better if all the different groups had joined in one petition because a question affecting the wool dealers, spinners and weavers in equal degree can be settled only by the agreement of all. It was therefore not surprising that these petitions were without effect. During the remarkable development of the textile industries in the 70s the question of conditioning was neglected. In 1896 the question came before the Reichstag as a subordinate feature of the law affecting competition. As a result the standards of moisture for textile materials were officially defined in 1900, twenty-five years after the first petition was presented. During this period the wool and worsted yarn trades had become familiar with conditioned weights by reason of their foreign connections. The German cloth manufacturers, however, were unacquainted with and indifferent to the question. The question of the proportion of wool in grease wool remained unsettled although of great importance. This induced the author of this article to construct an apparatus for extracting grease from wool and determining accurately the shrinkage of grease wool in scouring. This process was tested by wool dealers, spinners and manufacturers and generally approved. Unfortunately it was not adopted in Germany. The apparatus was patented and came to the attention of the Hungarian Minister of Agriculture, who, impressed with its importance, sent a representative to the Aachen conditioning house to study its operation. The consequence was that an official conditioning house was established at Budapesth which at the present time is the official arbiter for the Budapesth public wool auctions. Thus in Budapesth is the system for testing wool established that the German wool industry petitioned for in 1872.

This brief review of the development of conditioning brings us to the principal question. The official adoption of a conditioning standard having been delayed for twenty-five years it is easily understood why the woolen manufacturers are at the present time with few exceptions unacquainted with the process and its advantages. What is conditioning? By conditioning is meant the official determination of the gross weight and tare of textile materials, also the determination of the amount of moisture present and of the commercial weight based on an official standard of regain. All textile materials have the property of absorbing water. The degree of moisture cannot be determined by feeling the material. Scoured wool consists of wool and water. If the amount of water exceeds the normal limits the buyer pays for water instead of wool. It is the business of the conditioning house to determine this excess of water and the exact weight of the material. The dealer, for example, sells a lot of wool by conditioned weight. This lot has an excess of moisture amounting to 2.7 per cent. and in a short time dries out. When the wool is received the buyer discovers the loss as compared with the conditioned weight and thinks he is justified in deducting this from the conditioned weight. He loses sight of the fact that, although the wool weighs less the excess of moisture has been reduced that much while the conditioned or commercial weight remains the same. An example will make this clear. A lot of wool weighs 2,000 pounds and the moisture amounts to 20 per cent. Accordingly 120 pounds of wool consists of 20 pounds of water and 100 pounds of dry wool. The permissible amount of moisture in wool being 18 1/4 per cent. the commercial or invoice weight of the lot is (2,000 × 118 1/4 ÷ 120) 1,970 pounds. Let us suppose that this lot of wool dried out 15 pounds during transportation. The buyer in that case would receive 1,985 pounds. If the wool had not been conditioned and the buyer had deducted the 15 pounds for short weight he would have thought that he thus paid for actual

weight. How great is this error is shown by the figures. According to him the lot weighed 1,985 pounds, whereas the conditioned weight was only 1,970 pounds.

Let us take another case for illustration. A conditioning house gives 2 per cent. in favor of the seller, the wool being too dry and the buyer having to pay for a corresponding allowance. In this case also each has received his just dues and neither has the right to complain. The time is long since past when a dealer sells wool by scoured weight; in most cases he determines the conditioned weight and adjusts his prices to conform to it. It is the object of conditioning to determine the basis for both buyer and seller by which the wool dealer as well as the manufacturer can make his calculations.

Of equal importance is the conditioning of worsted top, noil, roving, waste and shoddy. The conditioning of noils and shoddy involves not only the determination of moisture, but also the oil in the material, which is of special importance in the case of shoddy. The conditioning of worsted is especially important as it involves the determination of the weight of the paper tubes, moisture in the yarn, the size of the yarn, uniformity of the yarn, etc. If the spinner delivers his yarn too wet he can lower the price per pound accordingly. Certain woolen and worsted manufacturers claim that they can keep track of the condition of their yarn by means of the yarn stock book. In this they are completely in error because the yarn is delivered to the weave room in small quantities; the more weighings that are made the greater will be the difference in weight while the chance of error is greatly increased.

Variations in the weight of paper tubes can be determined exactly only in the conditioning house. Worsted yarn is moistened in the spinning mills and part of this moisture is absorbed by the paper tubes, making them heavier. The weight of this moisture cannot be discovered by the manufacturer because it evaporates very quickly when the tube is exposed to the air. The moisture absorbing capacity of the tubes is to that of wool as 1 to 2. The dampness does not penetrate deep into the paper, but remains on the surface. If the paper tubes from a case of yarn are weighed it often happens that the weight agrees with that of the invoice, but is very different from that determined in the conditioning house after unwinding the yarn. The latter is generally higher than the invoice weight, this being due to the way in which the weight of the cops is determined in the spinning mills. The spinner weighs the tubes accurately, the yarn is wound on them and steamed in this condition. The tare of the box is determined and after the steamed yarn is packed in it the gross weight is found. As the paper tubes have absorbed moisture, the amount varying with the moisture in the yarn, the result is that the invoice weight includes more or less of the weight of the water absorbed by the tubes. This amount can be determined only by conditioning. The proof of this has been presented to the spinners and as a consequence the Worsted Spinners' Association has introduced a method of determining tare that has been used in the Aachen conditioning house for many years.

Another difficulty arises from the mistakes in counting the tubes, there being many cases where there are hundreds too many or too few noted on the invoices. In the first instance the manufacturer receives yarn instead of paper, the loss being borne by the spinner; in the second case the manufacturer receives paper instead of yarn, and is himself the loser. Furthermore the yarn count is determined in the conditioning house. Very often this enables the manufacturer to make corresponding adjustments in the set of warp and filling.

The same conditions obtain in the woolen yarn industry. Woolen yarn as sold contains a considerable amount of oil. This method of adulterating woolen yarn results in an enormous variation in the quantity of oil and moisture in the yarn. In mixtures of wool and cotton there is often a material variation from the proportion of cotton agreed upon. The yarn count varies widely in cheap yarn. Yarn dealers naturally strive to sell good qualities as cheap as possible. One spinner may maintain his price while the other reduces it and in many cases the manufacturer buys the lower priced yarn although it is in reality the more expensive. If it were conditioned he would be able to determine its real value and would reject it in favor of the higher priced yarn.

A PORTUGUESE THREAD MILL.

In our December issue we referred to a mill started about a year ago at Oporto, Portugal, by an independent company for the manufacture of six-cord sewing thread. We are now able to give our readers the description of this plant, issued by Dobson and Barlow, Bolton, England, the firm that supplied the machinery. The mill, shown at

FIG. 1.

Fig. 1, is electrically driven by means of a "Turbo Alternator," designed to develop 300 kw. at 520 volts.

It contains 11,760 spindles, 6,216 of which are on the ring system and 5,544 are on mules, in addition to the necessary opening and preparing machinery. There is also winding, doubling, and cleaning machinery. The plant is designed for producing counts ranging from 30s to 200s, doubled up to 6-fold.

The mill is also equipped with a complete system of bleaching, dyeing and polishing, and a spooling machine plant for sewing thread. It has, in addition, its own bobbin making machinery.

Fig. 2 shows the method of driving the blowing room machinery. The room contains a hopper bale breaker, a single opener with hopper feeder attached, and one single scutcher with lap forming apparatus for 38-inch laps. The hopper bale breaker, which is in the background and enclosed by a partition, is 36 inches wide, and is driven by belting from a 4-b. h. p. motor of 500 volts, running 1,000 revolutions per minute. The combined single opener and hopper feeder is driven by belting from a 5-b. h. p. motor of 500 volts, running at 1,000 revolutions per minute. The single scutcher is driven by belting from a 5-b. h. p. motor of 500 volts,

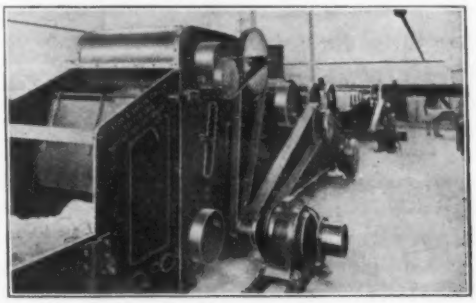


FIG. 2.

running at 1,000 revolutions per minute.

In the carding and combing section there are the following machines:

16 carding engines, 38 inches wide, with 50-inch cylinders, all worked on the revolving flat system.

3 sliver lap machines.

3 ribbon lap machines.

10 Heilmann combing machines of 8 heads each.

This section is driven by belting from a line shaft running at 200 revolutions per minute. The power is obtained from a 27 1/2-b. h. p. motor of 500 volts, running at 1,000 revolutions per minute, and is transmitted by belting.

In the frame department there are:

2 draw frames with a total of 27 finishing deliveries.

2 slubbing frames (398 spindles).

1 roving frame (152 spindles).

These frames are also driven from a line shaft by belting. The shaft runs at 250 revolutions per minute and receives its power from a motor of 37 1/2-b. h. p., 500 volts, running 750 revolutions per minute.

The 6 mules, containing 5,544 spindles in all, are driven by belting from a line-shaft running at 600 revolutions per minute. The latter is directly coupled to a 50-b. h. p. motor of 500 volts. The counts spun on these mules are 100s to 200s, from Sea Island cotton. The 14 ring frames, 6,216 spindles, are driven by separate motors. Each motor

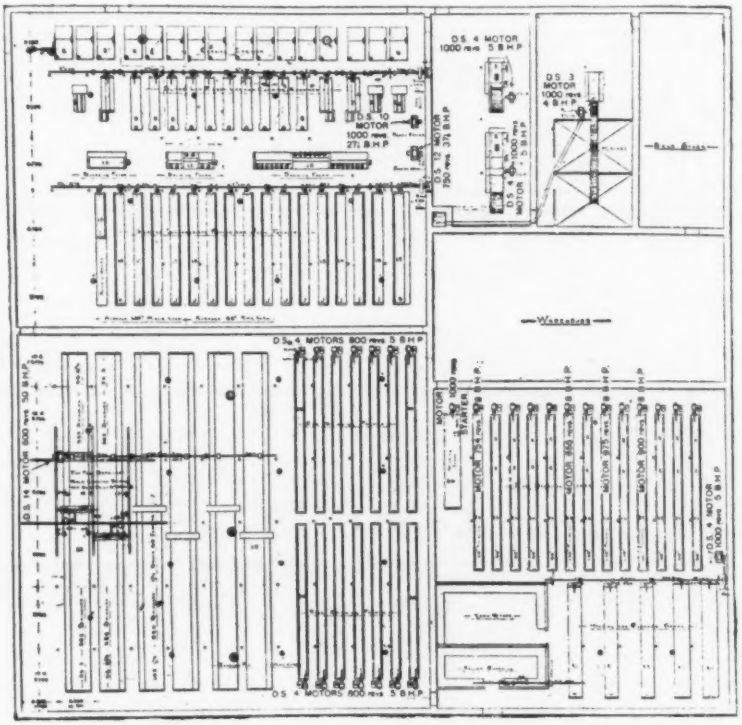

D.S. 4 MOTOR 1000 revs 5 B.H.P.
D.S. 3 MOTOR 1000 revs 4 B.H.P.
D.S. 10 MOTOR 1000 revs 27½ B.H.P.
D.S. 4 MOTORS 800 revs 5 B.H.P.
D.S. 4 MOTOR 1000 revs 5 B.H.P.

FIG. 3.

is 5-b. h. p. and is coupled direct to the tin roller shaft. The speed is from 700 to 900 revolutions per minute, and the motors are 500 volts. Egyptian cotton is used on the frames and the counts spun range from 30s to 80s. There are no buffets or outside end pieces attached to the frames.

The 13 frames in the doubling section have 5,408 spindles. Each frame is driven by an 8-b. h. p. motor of 500 volts. The motors are coupled direct to the tin roller shafts and run at 750 to 1,000 revolutions per minute. These motors, as well as those referred to in the driving of this Portuguese mill, are enclosed in slip rings, are fire and

gas proof, and the starters employed are of the enclosed type, placed beside the motors.

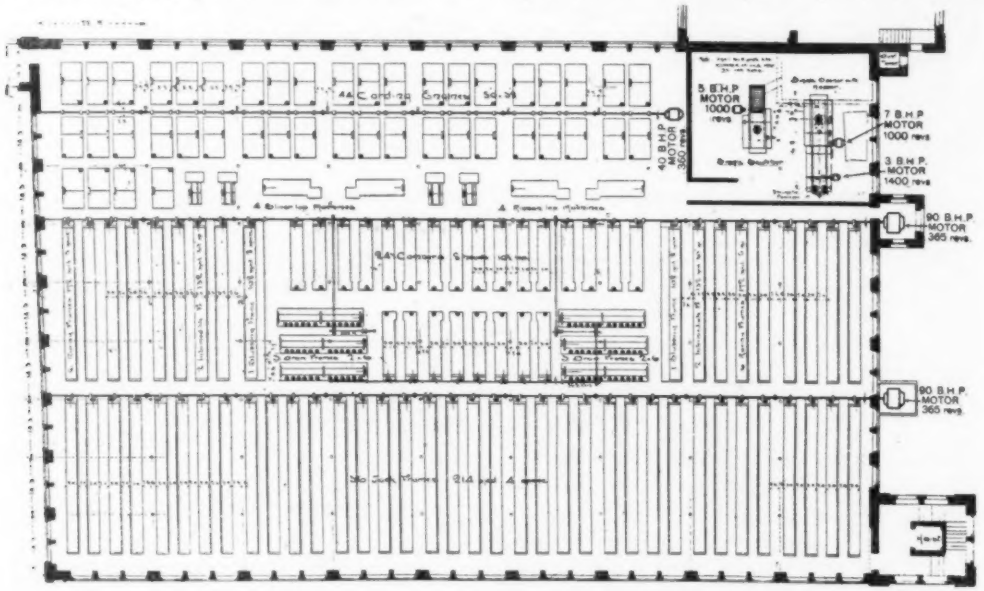

5 B.H.P MOTOR 1000 revs
7 B.H.P MOTOR 1000 revs
3 B.H.P. MOTOR 1400 revs
40 B.H.P MOTOR 360 revs
90 B.H.P MOTOR 365 revs
90 B.H.P MOTOR 365 revs

FIG. 4.

The machinery of this mill is arranged as shown at Fig. 3. From this it will be seen that the building is on the shed principle, and that the various departments are separate by division walls.

The illustration also shows the positions of the line-shafts and motors. The shed is well lighted, and wide alleys are provided for the convenience of the operatives. The driving arrangements are easy of access for the engineer in charge.

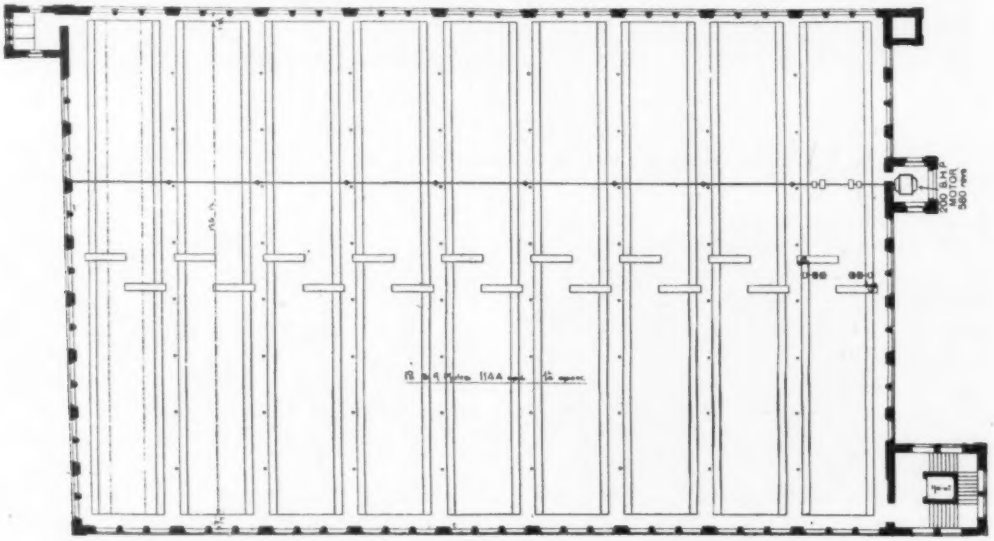


FIG. 5.

Fig. 4 represents the plan of a card and preparing room of a modern cotton mill electrically driven. It will be seen that, with

the exception of the blowing room, the whole of the machinery is driven by line-shafts, with the motors at the extreme ends. Belting is used for transmitting the power to the machines, and in the case of the draw frames, countershafts are used. The power from the opener and scutcher is transmitted from the motors to the machines by short belts.

The driving of the mules for the foregoing mill is shown at Fig. 5. One line-shaft only is employed, and short counter-shafts are fixed over each head-stock in the usual manner. The mules are double driven, and the motor is 200-b. h. p., running at 580 revolutions per minute. A separate chamber is provided for the motor, as shown.

ENGINEERING FOR INDUSTRIAL BUILDINGS.

BY D. C. NEWMAN COLLINS.

Mill owners have, sooner or later, to face the problem of plant extensions or the construction of a new plant. He does not want the cheapest building possible, but he does want the most suitable one for the least money. The first consideration is economy in production; any means for saving labor or increasing production will be of permanent value; any obstacle to these ends will cause a steady loss.

The writer was recently called upon to look over an old plant and found an entire absence of railroad connections and a corresponding annual cost of $5,000 for trucking alone. Throughout the entire plant there was a waste of labor in carrying heavy material back and forth during the various stages of manufacture. The trucking expense of $5,000 would pay 4 per cent. on $125,000, which was practically the cost of buildings in a new plant, while every advantage in labor saving devices and economy in operation in a new plant was clear gain.

It requires $20,000 invested at 4 per cent. to maintain one man in service at $800 per annum. If his capacity can be doubled it means an equivalent to the increase of that amount in working capital. The cost and control of labor is a complex and important matter in all industrial improvements. The growing difficulty is not only to get good labor, but to hold it. To study the mental and physical condition of men is really more important than the careful adjustment and lubrication of machines.

Mill buildings are not a matter of pleasing effects nor of fastidious decoration. They do not come under the classification of architecture as it is generally understood. This class of work is the offspring of a cold commercial computation of dollars and cents. How much will they earn and how much will they cost. An industry should be made co-operative in every detail, the mechanical and human equipment and the buildings making one homogeneous unit. The manager who is responsible for the expenditure of large sums of money has a responsibility upon his shoulders sufficient to warrant the expenditure of a small portion of it in skilled and experienced engineering ability.

The birth of an enterprise should be attended by a comprehensive and clear preliminary study of all points, made with an intimate knowledge of values and costs so as to present the proposition in clear shape for criticism, for discussion and for proving the amount of appropriation necessary to launch it successfully. Too often is an owner influenced to begin an important improvement with insufficient funds to complete it. With the preliminary report accompanied by reliable estimates and information to provide a convincing check upon extravagance and error an owner knows where he stands and is in the strongest possible position to decide intelligently when to begin spending money.

After general plans are perfected the administration aims to secure their accomplishment for the least money. This means close planning to do the work with the least material, to decide upon material cheapest and best for the purpose, to establish just how much material will have to be purchased and to buy it right. The foundation of all good buying is broad competition on definite quantities and qualities of material. Every contractor and material dealer has his own idea of successful business policy and it is

seldom one that permits a loss to himself. Very few of them will quote bottom prices until they see positive evidences of an immediate sale unless it is in the preliminary stages of the work when they may make their quotation attractive, knowing that the records do not bind them to any definite requirements.

A request to bid in competition is, virtually, a challenge to beat the other fellow and in getting his price where the owner wants it he is simply complying with the essence of the inquiry. This does not reflect upon the honesty or integrity of the contractor or material dealer. Every firm is measured and respected by its success in securing business at profitable rates. This merely points out the importance of establishing exactly what is to be done and how it is to be done before getting prices; uncertainties that add to the probable cost of the work should be eliminated and definite quantities fixed so that each bidder will start on an even footing and the work can only be controlled by price. It is even more necessary in order that the owner can control the delivery of the material and that he can feel sure that he is receiving full value for his money and that he may know that the accepted prices are right.

Plans and specifications are the sole technical and legal basis of adjustment in an exchange of money for building material delivered. If they are indefinite or incomplete so will the results be. They are useful in analyzing market conditions and indispensable in compelling the proper delivery of material.

A few thoughts on the ethics of contracting, as of recent practice, may illustrate the wisdom of a proficient handling of purchases. Many owners seem to think that competitive prices on a flat building of certain dimensions, without plans and specifications, as satisfying all demands of competition without regard to the uncertainty of how much material each bidder includes in his estimate and without appreciation of the helpless position he would be placed in should he need to compel its proper completion. It is easy to place a contract but much more difficult to feel sure that you get the value of payments on the work. Not knowing in detail what he is buying or what it should cost, he merely accepts the lowest bid and assumes that the price is right.

It has been the custom in many quarters to ask steel companies to estimate upon a building of fixed size, that contains steel, each quoting a price according to their own design. In such a case each is bidding upon a different thing and there is no real competition at all; they give very little data upon which to make a comparison. About all that is known is that "so and so agrees to put up a building for so much money and he is the lowest bidder." The owner pays thousands of dollars for a thing and does not know what it is.

The first question would be, "does he include everything?" A conscientious man who figures on giving everything required will not likely be the lowest bidder, while the one who figures on "skinning" the weight, or can arrange to run in some of it as an "extra" can well afford to bid low. An important question will develop here as to whether a steel contractor, probably located at a distance, can drive piles, lay brick, excavate or do other work as cheaply as local people can who have a local acquaintance and organization.

One thousand tons of steel at $100 and 2,000 tons at $50 amount to the same thing. Suppose, for illustration, that a building could be designed closely so that this 1,000 tons would answer all purposes and our records show the exact amounts in detail; we can invite the same bidders to bid on this fixed amount and secure the $50 bid, thus cutting the price in two.

General contractors who bid on the entire work for a lump sum do not always do every trade with their own men and consequently will get sub-contractors to estimate on their special trade for them. They add these various amounts to their estimates on their own work, add their profit to the total and send in this bid. In this way the profits are doubled up; each contractor has a cost and a profit and the general builder adds his profit to the total, and the only work that is done at cost is the particular branch that he is equipped to do with his own men.

Some owners favor the percentage form of contract in order to overcome the possibility of excessive profits and to permit of convenient changes being made during erection. In this method the work is done at cost and the builder charges a fixed percentage of the total cost as his profit. This form of contract has many indefinite results. Many disputes have arisen over the settlement of percentage contracts, perhaps due in many cases to the owner's unfamiliarity with the details of the building business and sometimes due to the abuse of the confidential nature of the agreement. Under this agreement there is no incentive to keep the cost down nor to prosecute the work with diligence; in fact the contractor's interests are rather in favor of slow and expensive construction.

These disadvantages have stimulated the presentation of many other methods. Some contractors will propose doing the work for a fixed profit, the owner paying all costs; others will offer to guarantee the limit of cost and charge a fixed profit; there are methods by which a proposal will be received to do the work for a fixed profit and at a limited cost, penalizing this profit for any overrun of the cost and sharing any saving made under the limit of cost. There may be contractors who will prefer doing only the labor and have all material furnished free by the owner. Sub-contractors will frequently bid on their special trade only, not wanting to assume work with which they are unfamiliar or poorly equipped to handle economically.

These methods all have advantages and disadvantages and are worthy of consideration. There is one fact, however, that remains unchanged by any proposition, that in a well planned building there is just so much material to be bought; there is just so much labor to be done in installing this material; there are specified details to be observed in its proper delivery and under fixed conditions it should cost just so much money.

Industrial buildings are usually constructed of wood, brick, reinforced concrete, steel or other material according to the demands of service and the natural resources of the locality. Where the operations consist of transporting heavy loads during manufacture the introduction of labor saving devices, such as cranes, trolleys, tramways, conveyors, elevators, etc., is necessary. These special requirements will largely control the type of construction; a study of these stresses will show whether the functions come within the limits of timber construction or will overrun into the more expensive reinforced concrete or into structural steel. In localities where lumber is easily obtained it is often cheaper, even if material must be sacrificed, to avoid heavy transportation charges on other material. The same advantage in cost would hold in a steel territory by using steel instead of transporting timber or stone, cement and sand. In some cases the building site produces a desired quality of sand and stone for concrete, making reinforced concrete cheaper even than timber.

This detailed arrangement of buildings into commercial quantities of material does not imply a mass of details to be supervised by the owner, nor does it tend to do away with the general contractor if his price is right. What it does do is to put a technical problem on a simple commercial basis, removing all doubt as to the best way of executing it economically. For instance, concrete is measured in cubic yards and analyzed into terms of so much sand, stone, cement, forms, labor cost of mixing, labor cost of placing it and finishing. Brickwork can be similarly assessed by classification of bricks, mortar, sand, cement, lime, labor cost of laying, scaffolds, cleaning down, etc., each subdivision being subject to close valuation according to local conditions. The control of the work is entirely in the hands of the man who is spending the money, as it should be.

A specific instance was developed in making purchases for a large mill building where the following conditions developed: Quick completion was desired; the separate local trades were hungry, but their rating was hardly in proportion to the magnitude of the work. General contract bids were excessively high when compared with the local prices on separate trades and material was very hard to get quickly. The purchases

were, therefore, directed in this way. All lumber schedules were made in detail in the engineer's office before the plans were complete and prices secured from these definite lists in open competition; material was delivered at the building. This order was placed and the time of delivery fixed. The steel and iron work was separated from other work and developed to the smallest detail on separate drawings as a flat basis of competition. Windows, doors, carpenters' irons, door sills, window sills, skylights, stairs, and all sub-trades were similarly separated from the plans and completed on special drawings or lists so as to read, so many like this and so many like that. Competitive prices were obtained and the orders placed. While the principal material was being prepared or in transit and other purchases being arranged the foundation plans were completed and contracts for labor given to the lowest bidder. This permitted the completion of this part of the work by the time the plans were done and material being received.

All local contracts were for labor only at unit prices; so much per thousand or per square foot; thus relieving the local men from great financial responsibility. The specifications were written as the work developed and were binding as to where one trade stopped and the other begun. Many sub-contractors were placed for the work erected complete. A competent superintendent was retained by the owner to work under the instructions of the engineer and the work was completed quickly, harmoniously and in a manner satisfactory to the owner and for a very low total cost.

Other work can often be done under a single contract to good advantage. It is simply a matter of knowing exactly what is to be bought and saying so at the start.

When buildings are developed to incorporate every detail of efficiency in manufacture; every saving in maintenance cost; every practical precaution against loss of fire; when they are produced on paper and again in commercial quantities of material, there are absolute records established that prevent any tendency toward litigation. Legal disputes are generally the result of misunderstanding, uncertainty or unfair methods and the elimination of these elements breed co-operation among the varied interests and a harmonious, quick and satisfactory execution of the work involved.

BALING INDIAN COTTON.

From a report by U. S. Special Agent W. A. Graham Clark.

Bales of Indian cotton are exactly even in size and nearly so in weight. They are much better put up than American bales and save greatly in both freight and tare. A few words on this may be of interest to Americans, even though so much has been written in regard to American bales that the subject is worn threadbare. The American bale abroad is a common subject of criticism among the manufacturing nations. Except for the fact that the interior is so much superior to the exterior there would be no American cotton sold abroad.

The presses used in India are very heavy, of the toggle-joint style, made of heavy cast iron and two stories high—that is, the cotton is packed in on the second story and the pressed bale taken out on the first floor. They are mostly operated by hydraulic power and the pressure applied—usually about 1 3/4 tons—is registered by a gauge and kept uniform. One press in a district receives the cotton from many scattered gins. As seen on the Colaba (the cotton section at Bombay) and elsewhere the method of operation is usually as follows:

The loose cotton is stacked in bins on the second floor, having been emptied there from the gin room. Where the press is at a distance from the gin—say in the case of the ginned cotton brought down from the country to be pressed at Bombay—it comes in large sacks about twice the size of a cotton bale or else in loose, hand-pressed bales. On this second floor, in front of the cotton bins sit, or rather squat, two lines of coolies. Between them is a latticework platform a few inches high made of cotton ties nailed crosswise and leaving spaces about half an inch square. Each coolie holds a bunch of rods in his hand. The end man passes the cotton on down to this latticework, and as

each pile comes along the coolies on each side knock it back and forth and then on to the others. The cotton is therefore beat back and forth by each set of coolies until it reaches the end of the line and is thrown into a heap near the press. Indian cotton is extremely dirty, and when picked has more dirt, sand, and trash in it than is ever seen in American cotton. A large part of this is knocked out in this fashion before it is baled. The dirt falls down between the lattice bars and is afterwards removed, though the air is thick with dust and lint, and most of the coolies have their faces tied up. It is not a healthful occupation and in some places the men are paid very high wages for India, receiving from 1 1/2 to 2 rupees a day, which is 48 to 65 cents.

The baling coolies, usually working in gangs of 14 to a press, take the cotton and pack it into a large box some 5 feet square that stands in front of the press. The cotton is not weighed before baling, but this acts as a sort of a measuring device, and the coolies learn by experience almost the exact amount necessary to weigh 392 pounds. One side of this box is then unhinged and rests on the press opening, and the coolies push the cotton over this into the press. The side lid of the press is run up by ratchet and the power thrown on. The toggle joint is drawn in to the vertical by a chain which runs out some 20 feet to the right and the cotton is compressed. When the attendant sees the gauge mark 1 3/4 English tons, he throws off the power. The coolies on the first floor undo the catches, swing back the massive doors, and put on the ties. Above and below are 11 tie openings. Three 5/8-inch ties, each 28 feet long, or a total of 84 feet, are used to each bale. Each tie is passed through these openings some three or four times, being threaded round and round and the ends then tucked under. The toggle joint is run up, the bale rolls out, and the coolies sew on the head ends, the side gunnies having been placed previously in the press.

This method differs essentially from the American, not only in the uniform size and pressure of the blades, but also in the fact that only 3 ties and no buckles are used. This latter fact alone should recommend it to American mill men, to whom picker-room fires caused by loose buckles is an everyday annoyance and occasionally a serious affair. The baling gangs of 14 are paid by the bale, usually receiving 2 1/2 annas, say 5 cents, a bale for the group. The ties cost about 100 rupees ($32.40) a ton on an average. Gunnies are of good quality and close mesh and average about 7 annas, or 14 cents, to the bale.

Bombay usually charges 1 rupee, 8 annas, a bale for pressing, and 8 annas, or 16 cents, for gunnies and ties. Upcountry the total cost per bale is higher and is usually 3 rupees (97 cents) a bale for total cost. Bombay however, usually uses secondhand mill gunnies, while upcountry, which is farther from Bombay mills and nearer to the centre of the jute manufacture of Calcutta, only new gunnies are used. Though the price also depends on the place and on the number of presses at the place, the foregoing gives some idea of the cost and shows it to be about as high as in the United States.

If American cotton were baled as well as the Indian there would be three advantages, viz: saving in freight, saving in trouble at mill due to buckles, and saving in tare and liability to damage. The most important is the saving in freight. Owing to the superior packing of Egyptian cotton the cost of freight from Alexandria to Liverpool is only 18 cents per 100 pounds, as compared with 30 cents per 100 pounds from New Orleans to Liverpool. A reduction of even 5 cents per 100 pounds would save in ocean charges alone $1,750,000 a year.

The rate on cotton shipments from India is continually varying and the carrying trade of India is so controlled by shipping rings which give rebates that the actual carrying charges of cotton are uncertain. On July 1, 1907, however, the quoted rate on cotton shipments from Bombay to Liverpool via Suez Canal was given as 15c. ($3.65) per ton of 40 cubic feet for ready (July) shipments and 14s. 6d. ($3.41) for forward (August) shipments. Rates from Bombay to Hamburg were quoted 1 shilling (24 1/3 cents) per ton higher. Japanese mills buy partly as an association through Mitsui's agents at Bombay and partly through other agents.

CORRESPONDENCE AND NOTES

Upon Textile Topics At Home and Abroad.

ENGLISH NOTES.

(By Our Special Correspondent.)

There is not much in textile England to show that there has been an American crisis. The suspension of the merchant house, Kessler & Co., Ltd., of Bradford and Manchester, with liabilities to manufacturers of of $436,000, is due solely to transactions with New York. It is improbable that a penny will be lost. A reduction of 20 per cent. in the working hours of Belfast flax-spinners is not unconnected with the crisis. To a heavy extent the North of Ireland is dependent on America still.

* * *

The admissions of a U. S. sworn weigher have aroused wide attention. The allegation is that he admitted to Thomas Coates, chairman of the Cotton Buying Co., Manchester, that sworn weighers systematically write up the weight of cotton bales for export by five pounds beyond the actual. He acknowledged the addition to constitute a lie. Candidly, he agreed that he and his confreres would swear just as many million lies as there were million bales sent for export.

If the weigher were merely adding another untruth, he certainly did nothing to re-establish the confidence that the South wants to win from foreign customers. Lancashire has had several shocks to confidence. The crops bureau scandal is not forgotten and the visitors to Atlanta have not reported that they found truth prized among people they met. A consumer naturally wonders whether five pounds a bale is the limit to mis-statements of sworn weights and naturally grumble that he should be charged for an extra that the American spinner has not to pay.

* * *

To prevent the contamination of wool by vegetable fibers the committee representing Bradford, London, Colonial, German and French interests, as well as those of the American Wool Buyers' Association, recommend the preparation of two notice-cards. One for use in shearing sheds directs that all straw and litter be removed before shearing; that each bag be turned out and be made free and clear from bits of hemp before packing; and that loose bits of twine, bagging and straw be kept scrupulously apart from wool.

The card for dock warehouse and store use directs that all bales are to be opened at the seams only, by cutting the blue twine; that frayed edges of bagging and loose bits of string be removed carefully and promptly by the staff chargeable with wool on show; and that warehouse "pullings" be looked over carefully before restoring them to the bales.

The ready test for the cleanliness of bagging is to rub the fabric against a dark coat-sleeve. One sees then how the cloth parts with its fibers. Hard-spun hemp or burlap is to be preferred and a Calcutta maker of bags suggests that the warp-face be turned inside. The committee find the Calcutta makers of wool bags splendidly indifferent to the situation. They "have no complaint;" they "entertain complaints from buyers only." The fact that their goods are earning discredit by wholesale means nothing, at present, to most of them.

* * *

It seems that "no significance" is to be attached to the large profits of the Thread Trust. The 30 per cent. dividend of J. & P. Coats "denotes no material change" in the earning power of the company. Thus Mr. Archibald Coats speaks in his apology to the public for the state of the balance-sheet. As for the dearer cotton, dearer lumber and dearer labor, of which so much has been heard, this has been offset by the "enhanced

value of stock," the "better interest on money lent," the "larger dividends of some of the Continental companies" in which Coats are interested.

Competition in the thread trade does not prevent J. & P. Coats from distributing quarterly dividends at the 30 per cent. rate for this year. Last year a timid 20 per cent. was passed round in instalments, the balance of 10 per cent. coming as a bonus. The chairman's warning not to expect a bonus on top of the 30 per cent. is not taken too seriously on the Stock Exchange. A bonus is expected out of the colossal reserve funds of $31,000,000.

Some of this may be earmarked for purchase of more competing mills. The Japanese interest of the company has been safeguarded by absorption of thread mills in Japan. But money may be needed for a transaction in Portugal. The opening of an independent factory at Oporto threatened the supremacy of Coats's "Elephant" brand. Prices of that mark dropped 20 per cent. in April and again 10 per cent. in May and latterly a 3-cent level has been reached for No. 50 on 200-yard spools and in a highly protected country. Dearer cotton and supplies assuredly did not work this phenomenon. The fall is clearly a product of competition and only very simple folk will expect cheap thread in Portugal after the conclusion of the negotiations to buy out the opposing mill. If J. & P. Coats have not a world-wide monopoly they have the useful sum of $20,000,000 free in "ordinary reserve" and doubtless that is a far better thing.

* * *

A prime characteristic of mercerized cotton is its avidity of dye, as injudicious woolen manufacturers have learned from striping loose-dyed dark material with threads of light mercerized cotton. By fondness for dye, Julius Huebner distinguishes mercerized from unmercerized material. He colors samples with solutions of iodine in potassium iodide and whereas natural cotton loses its blue tint after a few washings the mercerized article retains the color. Using a little zinc chloride with the solution, Mr. Huebner finds it easy to determine from the depths of the stain to what extent cotton has been mercerized.

* * *

Employment for some heavy coating looms is found in weaving 120 pick cotton twills for rain-coats. Egyptian 80s 2-fold warp and single filling is employed and shot effects are sought as well as plain dyes. A novelty in this line is the printed warp giving a broken shot effect. For example, a warp may be printed drab with red intermittent stripes and the filling be a dyed slate or blue. Lighter looms are doing broken checks of khaki tones formed from a heavy warp of cotton and worsted twist and a filling of single worsted. Here the worsted brightens the lustre of the fabric and 40 cent broad goods make warm competition with 65 cent cloth of all-worsted. In all such goods the trade is in drabs, their tones ranging from nearly blue to cream and nearly green shades.

* * *

The policy of leaving work to the specialist is reported to be growing in America as it always is here. We do not find large and successful firms nearly as anxious to add to the number of operations they perform as to do their present work to the utmost advantage. Belief grows that processes on a large scale can always be conducted more efficiently than on a small one. Few large consumers think nowadays of making their own soap, for instance. They buy from firms who boil fifty tons to their one ton and buy to an advantage.

One of the largest spinners of colored worsted, spinning quantities that might employ even a largish dyeing department, has been satisfying himself that his work is more economically done outside. What would apparently be saved on the weight dyed—and still more—would be lost when an equally efficient department in his own premises was running at less than its maximum output. The element of convenience not appearing in the case at all, the only advantage to be reaped from having his own dye-house was that of closer secrecy. To a certain number of persons singularly placed

this outweighs any small item of cost. In general, customers find friends in whom to put confidence.

* * *

Specialists like the large worsted spinners let the development of events guide them largely in their purchase of wool. They are not so fond of acting in advance as some of the large producers of cloths and knitting yarn and carpets, who complete all operations in their own mills. It may be that the grandeur of these operations induces too great a sense of self-importance, causing individuals to believe that the wool-market depends on them. If so the stiffness of merino prices and fall in stronger sorts should have weakened that sense. It would be easy to name mills of world-wide repute which have gone wrong in both directions. Whatever the relative efficiency of their working-costs, it is sure that some of them have a heavy burden of dear material and at a time when a balance of cost and selling prices is peculiarly hard to establish.

* * *

An employment for paper yarn of a sort cheap enough lies in the insulated wire business. Considerable weights of cotton are taken for the electrical trade and paper thread might comply with all requirements. The attempts of an English firm of cable makers to find a source of supply have not yet led to the discovery of this much-advertised material cheaper than 33 cents a pound. That figure prohibits business in this, and doubtless in most other, directions. The statement made on U. S. consular authority that paper yarn is being made in England as well as in Germany cannot be verified.

* * *

Some of the looms used in this country for weaving multiplex machine beltings tend towards the complex. In China the machine for weaving ramie belts is very simple if operating it is arduous. Three men weave, one opening the shed by pedal, a second inserting the yarn, a third ramming the filling home with a heavy wooden bar. Ramie ropes are a little used in England for open-air driving, ramie belts are not so well reported on. Both tend to crack soon at any joining. A leather belting which is uncommonly expensive, but is found efficient in trying circumstances in the mill has a contact-surface of a soft chamois type of leather. The purpose of the lining is of course to secure grip.

* * *

Before it can be used legally for manufacture in England, horse-hair has to be submitted to disinfection by steam. The purpose of the authorities is now to permit disinfection to be done alternatively by immersion in liquids. The liquids are to be those certified by properly registered bacteriologists as fatal to anthrax germs. Solutions of cyllin and formaldehyde in certain strengths and in a certain length of time are effective for the purpose.

* * *

A new activity of the lights of the Lancashire trade is revealed by the formation of a company. They have been seen teaching planters how to plant, compress-owners how to bale and dealers how to speculate. Observe them now financing inventions their fathers would have left to the machinists. Incorporated as "Machinery Components, Ltd.," the men who went to Atlanta, who engineer the Fine Spinner's combine and direct the employers' federations are exploiting mechanical improvements in spinning machinery. Their new "long collar" for spindles is obviously likely to be well-tried in the Lancashire trade.

WOOLEN CARDING—AMERICAN AND EUROPEAN METHODS COMPARED.

(Continued from December.)

The estimated cost of a set of good woolen cards with feeds complete would be about $2,500. From my experience I would advise feeds between the first and second breaker. The second breaker and finisher should be coupled together on double cards.

The production of woolen yarn depends greatly on the stock used, but I should consider from 500 to 700 pounds of 1 run yarn an average production; of 2 run, 300 to 350 pounds; of 3 run, 250 pounds.

The number of mule spindles would also

depend on the amount of the twist in the yarn. For hosiery and filling yarns I would say that a 312-spindle mule would be sufficient to follow a set of cards.

The necessary help to run 5 sets of cards, the overseer not included, would be as follows: On first breaker feeds, 1 man; between the first and second breaker 1 man; 1 finisher tender and 1 second hand. In the spinning room I would advise one man for every 312 spindles. I have had men run double this number, but not with very satisfactory results. Fletcher.

A set of cards for working low stock should be built as follows: Self feed on first breaker; card, 48 by 60-inch with steel tooth feed rolls; metallic breast with cylinder 18 by 48-inch, with three 6-inch workers, with strippers to match; one burr cylinder, 8 by 48, teeth set 14 to the inch; teeth on breast set 16 to the inch. The card should have 8 workers, 7 by 48-inch and 8 strippers, 2 1/4 by 48-inch, and a 10 by 48-inch tumbler; fancy, 10 by 48-inch; doffer, 30 by 48-inch, with 3 by 48-inch dickey. This card should be iron throughout except the fancy, which is of wood. No. 33 wire should be used except for the fancy, which should be No. 26 open set in leather.

The second breaker 48 by 60-inch with Apperly feed; 4 1/2 by 48-inch lickerin, clothed with No. 26 diamond point wire; tumbler 10 by 48-inch with No. 34 wire; 8 workers, 7 by 48-inch, No. 34 wire; 8 strippers 2 1/4 by 48-inch, No. 33 wire; cylinders 48 by 60-inch No. 34 wire; doffer 30 by 48-inch, No. 34 wire, with dickey 3 by 48-inch; fancy 10 by 48-inch, No. 28 wire set in leather. This card should be of iron except the fancy, which is of wood.

The breast of the finisher card should have a 4 1/2 by 48-inch lickerin, No. 26 diamond point wire; tumbler 10 by 48-inch, No. 34 wire; cylinder 40 by 48-inch, No. 35 wire; four workers 7 by 48-inch, No. 35 wire; four strippers 2 1/4 by 48-inch, No. 34 wire; doffer 18 by 48 inch, No. 35 wire; fancy 10 by 48-inch, No. 30 wire. This breast is all iron except the fancy, which is of wood.

Finisher cylinder should be 48 by 60-inch, No. 35 wire; 6 workers 7 by 48-inch, No. 35 wire; 6 strippers 2 1/4 by 48-inch, No. 34 wire; fancy 10 by 48-inch, No. 30 wire; doffers 14 by 48-inch, No. 35 wire. The doffers should have dickeys to ensure their running without cleaning and should be 2 by 48-inch, No. 30 wire with a good pitch.

With an Apperly feed and an apron condenser the production of a set of cards built in this manner in 10 hours on 1 run work would be about 600 pounds; on 2 run work, 450 pounds, and on 3 run 300 pounds. This card would supply a mule with 360 spindles. The necessary help to run 5 sets of these cards would be 4 card tenders, 1 stripper, 1 second hand; and an overseer. The number of spindles per operative in spinning room, 360; number of spindles for 5 sets of cards, 1,800. The cost of a set of cards built in this manner would be from $3,500 to $3,800.

Bristol.

To make from 3 to 1 run work from a mixture of wool cotton and shoddy I would recommend the following settings:

First Breaker.

	In. Wide	In. Diam.
Main cylinder	48	60
Doffer	48	30
Fancy	48	10
8 workers	48	7
8 strippers	48	2¼
1 tumbler	48	9
Improved comb motions.		
Latest Bramwell feed.		
1 single burr machine	48	10
1 set self stripping feed rolls.		

Second Breaker.

Torrance balling head and creel, 90 ends.		
1 set feed rolls, iron	48	2½
1 licker-in, iron	3	3½
1 tumbler, wood	8	3½
1 cylinder, wood	48	60
8 workers, wood	48	80
8 strippers, iron	48	2¼
1 doffer, wood	48	30
1 fancy, wood	48	10
1 licker-in, fancy wood	48	2

Finisher.

1 cylinder, wood	48	60
2 doffer rings, iron	48	20

1 fancy, iron	48	10
7 workers, iron	48	7
7 strippers, iron	48	2¼
1 tumbler, wood	48	8
1 licker-in, iron	48	4½

Apperly or Bates feed.
Apron condenser.
Cards to take off 48 good and 2 waste ends.

Clothing.

Tempered steel wire, Nos. 33, 34, 35.
Fancy sheets, rings set in leather, also all diamond point; remainder of clothing set in flexible cloth.
Total cost for one set of cards as above described, about $3,400.
If picked stock is used a metallic breast would be of great advantage and save wear on the clothing.

Metallic Breast.

	In. Wide	In. Diam.
1 breast cylinder	48	16
3 workers	48	5
3 strippers	48	2¼
1 second licker-in	48	3¼
1 first licker-in	48	3
1 licker-in, fancy	48	1¾
1 lumper	48	4
2 feed rolls	2¼	..
1 stripping roll	48	1½

The cost would be about $240 for up-to-date machinery that will compare favorably with any made in Europe.

The help required to run 5 sets of cards would be as follows:

1 boss carder.
2 men for stripping and grinding.
1 man for Bramwell feed.
2 boys for Torrance ballers and creels.
1 boy for Apperly feed.
2 boys for finisher fronts.

The number of operatives per spindle in spinning room would be:

1 boss spinner.
1 second hand.
1 boy to bring spools from card and assist in the doffing.
1 spinner for each mule.

A grinding machine for the card room would cost about $250, and a good mixing picker, $250.

The production in 10 hours of 1, 2 and 3 run yarn, estimated in a speed of 16 r. p. m. of the 20-inch doffer rings would be 700 pounds of the 1 run yarn made with 1/3 draft for one set of cards. This doffer is sometimes run as high as 21 r. p. m. Of course the production depends largely on the character of the stock as well as the size of the yarn and the amount of twist it contains.

One mule of 360 spindles 2 1/4-inch gauge should take care of the production of 700 pounds from one card. The cost including banding would be about $1,090 each.

Anthony.

PRODUCTION AND COST.

BY J. LEE NICHOLSON.
President of the American Cost Accounting Company.

In the ordinary manufacturing business, the market price of the product is fixed before the manufacturer commences business, and he must, therefore, either sell at these prices or discontinue the manufacture of the article. The principal profit in the manufacturing business, therefore, lies between what the product does cost and what it should cost.

No one will dispute the fact that as long as an active demand exists the production of any particular article will continue. It is equally reasonable to suppose that no one will manufacture an article at a loss, indefinitely, if he knows it. If, therefore, one makes a profit and another loses money when conditions are equal, it becomes evident that one is operating on a systematic basis, while the other is not.

PAYING LOSSES OUT OF PROFITS.

There are manufacturers who are ignorant of the face that one of two profitable departments of their factory are paying the heavy losses of others that for one reason or another are not making expenses. They are satisfied with the combined profits which are small, not realizing that the large profits they are actually making are used to pay the

heavy losses of certain mismanaged departments of their business.

It should be borne in mind that it does not require a thorough system to stop a leak that is apparent without any system, but it does require a good system to detect the invisible yet never ceasing drip that wears out the foundation stone of a great business.

FALSE PROFITS.

Many business men do not realize that their books may be closed at the end of the year with an inventory incorrectly taken, priced above or below cost, and either a false profit or a false loss shown.

An entire line of goods may be omitted from the inventory without being discovered, and the inventory may be figured by mistake at a piece price instead of at a dozen or gross price, without being noticed. Can material in process of manufacture or finished product be correctly priced if an estimated cost system is in use? Can the quantity shown by the inventory be relied upon if there is no means of verifying it?

Would the result shown by books closed in this way justify a change of policy?

SYSTEM DECREASES COST OF PRODUCTION.

The cost of production may be decreased materially by introducing an efficient factory system, for the purpose of determining the cost of production accurately, decreasing indirect expenses, bringing to light excessive costs, theft of material, waste, excessive machine costs, shop errors, negligence on the part of employes, and the cause of decreased production.

A proper factory system will indicate to the proprietor or manager where his business is weakest, what departments require attention and where assistance may be given to either restore or increase the efficiency of a particular department.

ORGANIZATION.

The first requisite, preliminary to the introduction of a factory system, is a proper factory organization, that will permit of operating on a systematic basis, bringing all operatives under proper supervision and control and keeping the management in easy and constant touch with every department of the business.

UNIT COSTS.

A cost system is an analysis of the transactions in a factory by which the various kinds of costs are correctly and properly distributed, thus substituting accurate results for estimates. It supplies the manufacturer with reliable information. The man with an efficient cost system is working in clear daylight, while the one with a defective system or without any is groping in the dark, and the advantage gained by the former is so great that it almost assures success from the outset.

It is not only necessary to know the total cost of the article, but the cost of each operation as well. This cost should include all factory expenditures, such as material and supplies, direct and indirect labor, department indirect expenses, general factory expenses, maintenance and depreciation. All indirect expenses, properly chargeable as cost of production, should be distributed according to actual expenditures, and not according to past experience, as is usually done. In distributing general expenses, great care must be taken or it may appear that an article costs more to manufacture than it can be sold for.

These records should clearly indicate the efficiency or inefficiency of all operating departments and should make it possible to prevent waste, defective work, shop errors, loss of time, or negligence on the part of the employes.

MACHINE COSTS.

The cost to maintain and operate each machine, as well as the capacity and working efficiency of each, should be determined in order that a proper record of production may be obtained. These records should be so arranged as to indicate whether the machines are 40, 50, 80 or 100 per cent. efficient.

By operating on this basis, the machines report the men, and the cause of decreased production is at once brought to light and the capacity of the plant maintained. It should be remembered that decreased production means increased indirect expenses,

thus making the cost higher. This applies whether the plant is operated on day or piece work.

By supporting the machine records with time records, costs by operation may be obtained in such a way as to make it possible to operate all departments on piece work prices, based on comparative machine costs. In this way any changes in superintendence will not affect the organization of any department, as these records will show the maximum and minimum record of each employe, indicating how the men should work.

UNIT PROFITS.

It is necessary to ascertain not only the profits made by each department, to locate the departments that are being operated on a paying basis, but it is equally necessary to know the profit on each article so as to determine where the profit is made or the loss sustained. It is also advisable in certain cases to know the profits derived from each customer, as it frequently happens that when manufacturing two classes of articles for the same concern, the manufacturer knows he is losing money on one article and thinks he makes up the loss on the other. He thinks, but he should know. Then he can determine whether or not he should continue to produce the article at a loss, or lose the business, as the only alternative.

STOCK SYSTEM.

The problem of stock is second only in importance to that of costs. A system for the care of stock will insure economy in production, prevent unnecessary waste, and be a check on stock from being mislaid or disappearing. Each of these is a factor so important that the leakage resulting in any one year may run into thousands of dollars.

With a proper stock system there can at no time be an over-supply of stock on hand, resulting in loss of interest on capital so tied up, nor on the other hand can there be a lack of stock which would result in buying under unfavorable conditions of vexations and costly delays in the execution of orders.

ANTIQUATED MACHINERY.

In the event that costs cannot be decreased owing to the machinery being so old that it is too costly to maintain and operate, machinery of a more modern type should be installed. There are certain departments in factories that are operated at a loss, and consequently their maintenance becomes unjustifiable. It frequently happens that mechanical difficulties prevent the manufacture of certain articles at a profit. Such difficulties, however, are not insurmountable.

ARRANGEMENT OF PLANT.

A more systematic arrangement of operating departments may prevent unnecessary handling of product, thus affording proper aisle space resulting in a reduction of indirect expense and increased output.

Slight changes in the arrangement of the plant might afford better light, more ventilation, and proper receiving and shipping facilities, thus giving the benefit of natural advantages, overlooked when the plant was erected. It is possible that the machines could be run faster or the cost of operating them reduced by a more economical arrangement, resulting in a reduction in costs, by enabling tenders to operate more machines than under the present arrangement. This would reduce machine costs, and would also save handling material.

In many cases the power plant is not as efficient as it should be and does not develop the proper amount of power for the amount of coal consumed. The engine may not be doing all that it is able to do, resulting in loss power. Again the power may be wasted in line shafting improperly lined up.

A systematic plan of operating instills confidence, creates better feeling and has a strong moral effect on employes. Any investment that improves the employes attitude to his employer is a paying one.

BETTERMENT APPROPRIATIONS.

It is only a matter of time before every manufacturer will realize the importance of establishing a betterment fund, by setting aside a specified sum annually out of earnings, for the purpose of improving and modernizing his plant.

A small amount set aside each year and expended in an intelligent manner would make it possible to substitute modern for

antiquated machinery, rearrange the operating departments, install machines to do what men are now employed to do, and modernize the plant generally. All of these improvements can be made by following this plan, without investing new capital and without the manufacturer feeling it.

The policy of an industrial enterprise must be either progressive or passive. By constantly making changes in the methods of operating, inviting criticism, giving careful attention to new ideas, discarding old methods and inaugurating new ones, great savings will necessarily result.

SUBSTITUTION OF MATERIAL.

When it becomes apparent after proper tests that no profit can be made by the use of a certain material, cheaper material should be substituted or the manufacture of the article abandoned. This alone often changes the balance on the profit and loss account in the right direction.

"MY LINE OF BUSINESS."

The most common reason given for the unsystematic and unbusinesslike methods used by the majority of business men, is that while better methods may be used in other lines, in their particular case it cannot be done. This really means that they refuse to believe that anyone else can do that which they cannot.

The method of conducting the same class of business differs in almost every instance and as each case must be individually treated it makes no difference whether the particular class of business has ever been systematized before or not.

It stands to reason that the man who devotes his whole and undivided time to one subject can accomplish with ease what the ordinary man considers impossible.

MOISTURE IN WORSTED YARN.

New York, Dec. 18, 1907.

Editor Textile World Record:

Your article in the October issue entitled, "Moisture in Worsted Yarn," has come to my attention. Having introduced the conditioning of textiles into the United States some twenty-five years ago and having continued the business up to the present time, I feel warranted in saying a word upon this very interesting subject.

It is almost incomprehensible why manufacturers in this country do not avail themselves of the same method of doing business which has been in operation for so many years in Europe, where they send their raw material to the conditioning houses and are able to ascertain very easily the absolute weight of the merchandise they buy or sell. We have only to refer to the great success of the Bradford Conditioning House for proof on this point.

In England as well as in other parts of Europe, no wool yarn nor cops change hands unless they have first been sent to the conditioning house and the absolute weight ascertained. In France, Italy and Switzerland the silk merchants follow the same rule, and in the large silk centres the conditioning houses for testing materials have met with great success.

Your article speaks of the European standard of regain of 18 1/4 per cent. as being used in England. I see no reason why the same standard should not be adopted in America.

You also state that "where the mills are located far from the official conditioning house small testing apparatus could be set up at moderate expense." It seems to me, however, that if some understanding could be arrived at between the various woolen manufacturers to have a certain amount of samples from each lot sent to the official conditioning house, it would be far better, as the work could be done much more carefully and at a smaller expense than is possible at the mills. The cost of each test would be a small item as compared with the gain that would be accomplished.

ROBERT B. HOGUET,
President New York Silk Conditioning Works.

The total area under cotton in the 16 cotton growing districts in India is now reported to be 186,202 acres, or 3,518 acres more than last year.

THE HOWARD & BULLOUGH BUILDER MOTION.

BY BOLSTER.

Before entering into a detailed explanation of this motion a general description of its operation will be in order at this point. The shaft, A, Fig. 1, is driven at a slow speed by a train of gearing from the cylinder shaft, and carries the worm, A^1, which meshes into the worm gear, B^1, on the cam shaft, B. The cam shaft carries either a filling or warp cam; in case of a combination builder, both cams are always on the shaft, and by a special construction of the builder arm, either cam can be put into operation without removing the other.

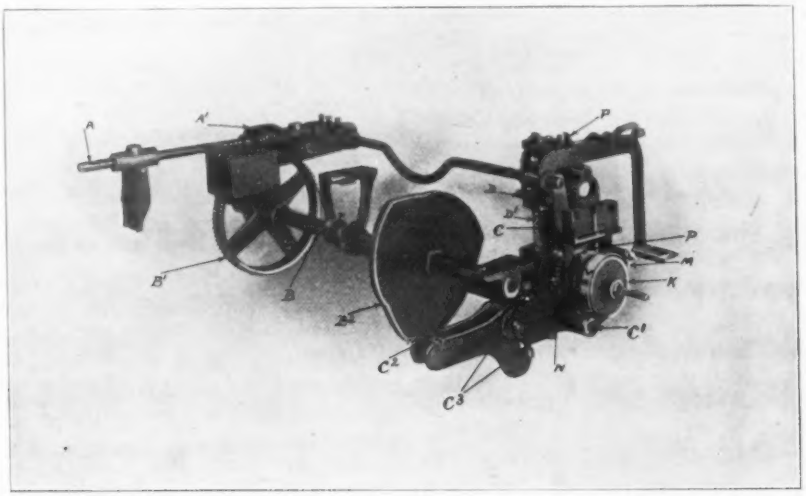


FIG. 1.

The builder arm, C (Figs. 1 and 2) is centred at C^1, and is given an oscillating motion upon its centre by means of either the warp or filling cam operating upon the cam roller, C^2, the latter being kept in contact with the face of the cam by the pressure exerted upon the rod, D^2, through the ring rail, J, which rests upon the lifting rod, H, and causes the arms, F and E, which are centred at E^1, to pull upon D^2, with a tendency to swing the arm, C, to the right, and thus bring C^2 against the face of the cam.

Centred also at E^1 is the arm, G, carrying a balance weight, G^1, the latter being applied to assist the cam in raising the ring rail, J, and thus reduce the strain which would otherwise fall upon the cam and connections.

The vertical portion of the builder arm, C, carries a screw, D^1, upon which is threaded the nut, D; secured to D are two chains, one on each side of the arm, which form a flexible connection between the builder arm and the rod, D^2, and through which the motion is transmitted from the builder arm, C, to the lifting shaft, E^1. The nut, D, is capable of being raised or lowered on the screw, D^1, by the bevel gears, D^3 and D^4.

The bevel, D^4, is secured to the foot of the screw, D^1, and meshes into the bevel, D^3, while the latter is on the same shaft as the ratchet or builder gear, K, see Figs. 1 and 3. Around a portion of the circumference of K is a shield, L, upon which the pawl or catch, M, can slide, without engaging with the teeth of K.

On the same sleeve as the pawl, M, is a spur gear, N, into which meshes the teeth of the quadrant, P, the latter being centred on a pin, P^1, secured to one of the brackets which support the motion. The upper end of P is made fork shaped to receive the pin, Q, while the latter is adjustable in the slot shown on the top of the arm, C, Fig. 2. When C moves toward the cam shaft the pin,

Q, forces the upper end of the quadrant, P, in the same direction, and causes the lower end to revolve the gear, N, which moves the pawl, M, until it slides off the shield, L, and engages with the gear, K. After the pawl leaves the shield and engages with K, a portion of a revolution is given to K. On account of K and D^3 being on the same shaft, the bevel gear, D^4, is also given a portion of

When the above setting has been made, the vertical arm of the builder, C, must be at a right angle to the horizontal arm. The adjustment is essential in order to give an equal taper at each end of the bobbin. In order to obtain the above setting, the horizontal arm is made in two parts and an adjusting screw provided as shown at C^3, Figs. 1 and 2.

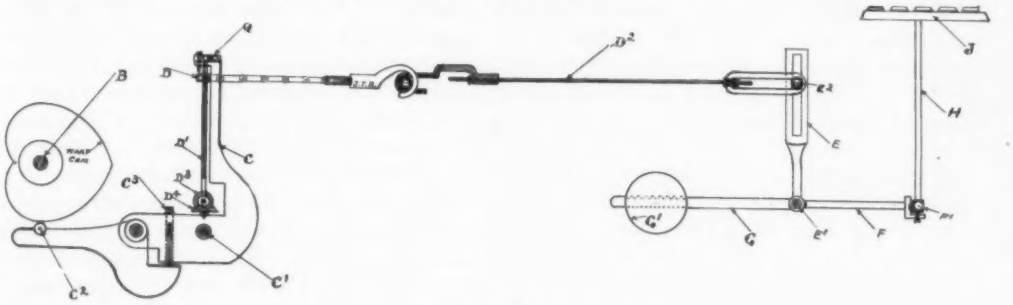


FIG. 2.

a revolution, and turns the screw, D^1, so that the nut, D, is lowered or brought nearer to the centre, C^1.

The number of teeth taken up or amount of motion given to the gear, K, will depend upon the sweep given to the quadrant, P, and the position of the shield; the latter be-

Now measure off the length of traverse to be used, and make a mark in the centre. Then connect the builder arm with the lifter shaft arm, E, and adjust the connecting rod, D^2, by the screws at the ends, until the ring rail is in line with the mark previously made on the bobbin.

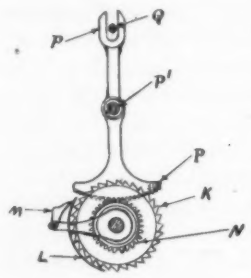


FIG. 3.

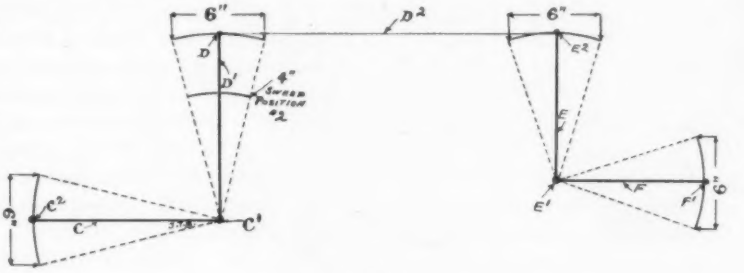


FIG. 4.

ing adjustable to the count of the yarn and build of the bobbin.

To set the builder motion first mount the cam shaft and have it revolve freely in its bearings. Next place the builder arm in position and have the centre, C^1, on a line with the cam roller, C^2, when the cam is halfway between the highest and lowest positions. When making this setting be sure that the centre of the cam-shaft, B, is directly over the centre of the cam roller, C^2.

If after starting the frame there is more taper at one end than at the other, it is evident that some of the above settings were not accurate enough, and it may be necessary to use the adjusting screw, C^3, to correct the defect; for example, if more taper is on the bottom than on the top, the screw will require turning in a little. If the nut, D, is as high as it is possible to put it, and the traverse is too short, it would be necessary to drop E^2 a little on the arm, E.

When a warp bobbin is to be made, a heart shaped cam is employed on this as on nearly all builders. The chain connecting the arm, E, with the vertical builder arm, C, passes straight from the nut, D, to the rod, D^2; as the cam is revolved slowly, the arms,

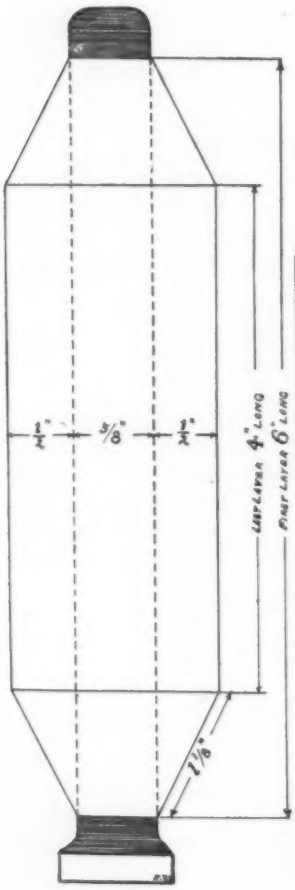


FIG. 5.

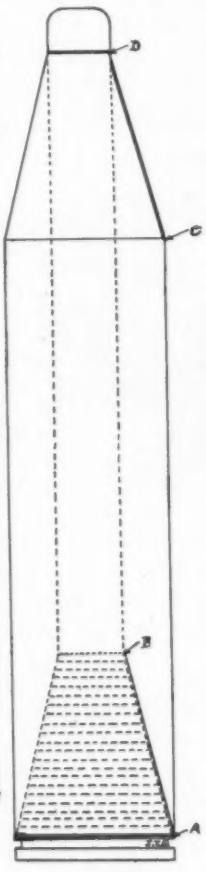


FIG. 6.

C and E, connecting with D^2 are oscillated on their centres, and an upward and downward motion is imparted to the ring rail, J.

When the first layer of yarn is put upon the bobbin, the nut, D, is in its highest position on the screw, D^1, and is at its greatest distance from the centre, C^1, imparting the maximum traverse to the ring rail. As the bobbin fills, the nut is gradually lowered or brought nearer to the centre, C^1, by the ratchet gear, K, as described, and by this means a gradual shortening of the traverse is obtained. Referring to Fig. 4 for further illustration:

The line C = distance from C^1 to C^2.
The line D^1 = distance from C^1 to D.
The line E = distance from E^1 to E^2.
The line F = distance from E^1 to F^1.

Again the distance from C^1 to C^2 is equal to that from C^1 to D, with D in its highest position. The distance from E^1 to E^2 is equal to that from E^1 to F^1.

If the cam gives the cam roller, C^2, a total sweep of 6 inches, and causes it to travel the same distance on each side of a horizontal line drawn through the centre, C^1, then the nut, D, being the same distance from C^1 as C^1 is from C^2, will also have a sweep of 6 inches, divided equally on each side of the vertical line, D^1. This movement is imparted to the rod, D^2, and communicates a movement of 6 inches to E^2. On account of F^1 being the same distance from E^1, the ring rail will traverse 6 inches. With the above arrangement the rail traverse is practically equal to the sweep of the nut D.

The nut, D, is brought nearer to the centre, C^1, as the bobbin fills. By assuming D to be lowered to the position shown at No. 2, its sweep will be decreased. Let us assume that when D is in its highest position, it is 12 inches from the centre with a sweep of 6 inches; then when in position No. 2, which is 8 inches from the centre, the sweep of D will be equal to $(8 \times 6) \div 12 = 4$ inches. The traverse of the ring rail will also be reduced from 6 inches to 4 inches as at Fig. 5, and thus make a bobbin with conical ends.

The amount of taper on the bobbin will depend on how much D is lowered after every traverse; this is governed by the number of teeth the gear, K, is allowed to be turned by the pawl, M.

The filling bobbin, Fig. 6, differs from the warp bobbin in several particulars. First, the traverse or sweep of the ring rail must remain the same through the build of the bobbin, instead of varying as with the warp bobbin.

Second, in place of the first layer of yarn extending from top to bottom of bobbin, it is placed on about 1 1/2 inches, A B, at

bottom of the bobbin, and the succeeding layers are laid on each other so that each occupies a little higher position on the bobbin than did the preceding one, thus working up gradually until the last layer, C—D, is put on. This forms the bobbin from bottom to top, instead of from the centre outwards.

The filling cam is placed in position for operating the builder arm. As will be seen by Figs. 1 and 2, the warp cam is heart shaped and has one long sweep occupying the entire revolution of the cam shaft to give one traverse in each direction. The filling cam is designed to give a shorter sweep, but gives three complete traverses in each direction for every revolution of the cam shaft.

To keep the same traverse throughout the entire bobbin on the builder motion, a short spindle carrying two small rollers is inserted near the top of the arm, C, so that the chains connecting D with D^2 pass over them.

The spindle referred to is always the same distance from the centre, C^1; this causes the chain to pull upon D^2 from the same point, which is equal to having a fixed position on the vertical builder arm, at a given distance from the centre.

The operation of the gear, K, is the same for the filling build as for warp, with the exception that a shorter quadrant is used; the action on the nut, D, however, is the same in each case, but, on account of the small guide rollers being the bearing point for the chain, these give the same sweep to the arm, E, while the lowering of D pulls on the chain, and has the same effect as shortening the rod, D^2, or the distance between the arms C and E. The arm, E, is drawn nearer to C, and the arm, F, raises the ring rail in the same proportion; this allows the yarn to be wound higher up the bobbin.

The foot lever shown in Fig. 1 is used for disengaging the worm, A^1, from the worm gear, B^1, so that the rail can be lowered when the bobbins are full; this allows the cam shaft to become free. As the weight of the ring rail overbalances the weights represented at G, the rail falls to its lowest position ready for doffing.

In either warp or filling build the nut, D, is always returned to its highest position on the arm, C, before starting a new set.

DISSECTING FABRIC STRUCTURES.

(Concluded.)

We next come to those systems of weaves having two systems of warps and two systems of filling, each system calling for face and back respectively, being what we term regular or real double cloth. Besides these we also find such which have an additional system of warp, generally added for additional figuring purposes calling in this instance for 3 systems of warp and 2 systems of filling; again we may meet with double cloth constructed with 2 systems of warp and 3 systems of filling, the third system of filling being in this instance added either for figuring purposes or what is more frequently the case for the purpose of a stuffer pick, i. e., to increase the bulk of a double cloth structure.

In the dissection of a double cloth sample it is necessary first to ascertain in what ratio the number of ends in the face warp stands to those of the back warp, said ratio varying according to the purpose of wear of the goods under consideration, ratios most frequently met with being 1 : 1, and 2 : 1, although sometimes we may come across 3 : 1 or 2 : 1 : 1 : 1. Next ascertain the ratio of face to back filling, and which ratio corresponds to the various items as previously quoted in connection with that for the warp systems.

In connection with the analysis of double cloth we meet work where a knowledge of weave formation and fabric structure will be found of the greatest of advantage. Possessing such a knowledge, after ascertaining as previously explained the ratio between face and back ends in warp and filling, in connections with worsteds or woolen goods only slightly fulled, we then cut off a small portion from the sample submitted and in turn pull out all the back warp from this fraction of our larger sample. This procedure in most instances will at the same time also liberate the back filling from the structure, giving us in turn our bare face structure, i. e., single cloth, and which we then in turn can readily pick out with reference to weave used for it. Taking the back structure in this way from its face structure shows us that in this instance the back warp has been

stitched to the face filling for the purpose of uniting the two single cloth structures into double cloth. This is the most frequently met with arrangement; still often we may meet with the other method of stitching and when then the face warp stitches into the back filling and when the pulling off of the back filling in turn will also liberate the back warp from the double cloth structure, giving us in turn also the face structure, i. e., single cloth, by itself.

During picking off of the back warp or back filling according to which method of stitching employed, as a rule we cannot help but have noticed the interlacing of the back structure as well as the frequency of the stitching, i. e., the arrangement or weave as used for said stitching, information thus far gained, all combined, being in most instances (average samples) sufficient to construct the complete double cloth weave from it. In connection with more complicated samples, however, we possibly may have to make some additional researches regarding the 3 items required, since it may be hard to separate the back from the face structure; again in connection with some fabrics, for example, heavy woolen fabrics like some grades of beavers, ,overcoatings, fancy cassimeres etc,, it would be all out of question to try and separate the back from the face structure or vice versa, and when after singeing the face and back of the fabric and in turn ascertaining the ratio of the face: back for warp and filling, we then ascertain the three items: Weave for face structure, weave for back structure and stitching of the structures into double cloth, by experience in connection with such researches for each item as is found necessary or advisable, in turn constructing the weave required for producing sample given, by experience. To explain this subject Diagram Fig. 7 is given and of which A represents the weave for the face structure (the $^{2}-_{2}$ 4 harness twill), obtained either by separating both double cloth structures, i. e., picking off the back warp and thus liberating at the same time the back filling, or being ascertained by experience without having to resort to separating the two structures. B is the back weave obtained by means of examining the interlacing of two or more back warp threads with their backing picks, and which is a very easy matter to do. The interlacing of both structures suppose we found to be done with the back warp into the face filling, said interlacings found to be done with every eighth face pick, will be a feature which at once will tell us that the 8 leaf satin, as shown in connection with diagram, C, is the arrangement used. Still further we ascertained that the arrangement of the two systems of warp is 1 : 1 and that of the filling 2 : 1. With such knowledge gained, it then will be easy to compose the double cloth weave as given in Diagram D and which by

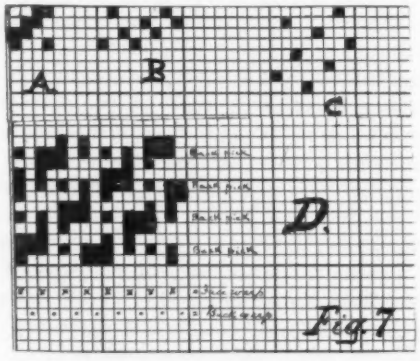


Fig 7

means of explanation given at the margins of the weave will explain itself.

Again, in some instances, we may be compelled to positively have to pick out the weave from a given sample, it being absolutely necessary to reproduce the same, and no other way to get at it. In such a case, after preparing the sample submitted similarly as explained at the beginning of this article, we then commence the picking out with the face warp in connection with a pick from the same system, a feature which becomes an absolute necessity as soon as the ratio between face and back is 2 : 1. Before taking out the first face pick mark upon the point paper the lines, i. e., rows of squares intended for the back warp and back filling, said memoranda greatly facilitating the work besides giving us a guide as to correctness of weave as the same gradually builds itself up during picking out. In the picking out of double cloth weaves, special attention must be paid to those places of the cloth pattern

where the tying of the two sets of fabrics is done, the most trifling deviation from the fundamental rules of how to construct double cloth impairing the beauty of the face of the fabric. Particular attention must also be given to ascertaining the manner in which this stitching has been done, i. e., whether the face structure is tied to the back, or the latter to the face. It may sound odd that this should make a difference, and yet a very essential difference exists in the two manners of tying. If, for instance, the back warp structure ties to the face, then, after a certain number of face picks, the back warp enters also into a face pick, whereas if stitching the face structure in the back cloth, the face warp, off and on, according to arrangement as used for stitching, then enters into a backing pick, and when reverse conditions take place. The latter style of tying, however, is less frequently used than the former, in fact only when a special advantage for stitching in this way presents itself.

Another system of weaves which frequently may come under our notice are such as known as "False Back" structures, i. e., fabrics in which the warp forms both the face and the back of the fabric. These structures are intended to take the place of such as constructed with two systems filling and one system warp, and the analysis of which we previously explained. The purpose of false back weaves is to do away with 2 beam work, a feature more or less necessary in connection with fabrics constructed with two systems warp and where each system interlaces on a different weave. False back weaves will make little if any trouble with reference to their dissecting in order to obtain the weave, since more or less in their principle of construction they are identical with single cloth corkscrew weaves and when naturally the picking out is identical to the latter systems of weaves, and to which we previously already referred to, i. e., picking out the warp from the filling, and when after liberating a few warp threads in this way we will be at once able to build up the remainder of the weave by theory except the beginner would prefer to pick-out the sample until the repeat of the weave is obtained by him. In order to explain the subject, we give in connection with diagram Fig. 8 the pick-out, i. e., the analysis, i. e., the weave obtained by means of picking out such a false back structure, the same referring with reference to its face weave, to what we term a fancy twill, a weave frequently made use of in connection with piece-dyed worsteds.

We also will come in contact with a class of fabrics like chinchillas, whitneys, ratines, montanacs, etc., which, as already previously referred to, require special work in connection with picking out the weave, on account of some of the picks, the face picks in most instances, being broken on the face of the fabric, by means of the excessive gigging required by these fabrics, in order to be able

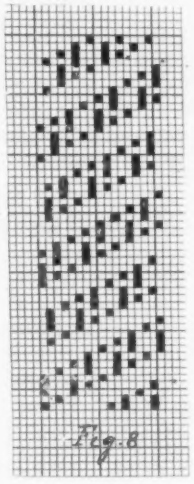


Fig. 8

to produce the characteristic finish afterwards. At the same time this face filling, as a rule, contains only as little as possible twist in order that the breaking of the face picks by the teasels is made very easy. Some of these fabrics are constructed with one system warp and two systems filling, to the analysis of which arrangement we previously referred; whereas, again others refer to pure double cloth structures. In either case, we will have to be careful when analyzing for the interlacing of the face picks, i. e., when picking out a face pick be careful to ascertain the number of warp threads between which said face pick was broken during the process of gigging, and from such data then build up the complete interlacing of said face pick.

In many instances, in connection with fabrics constructed with 1 system warp and 2 systems filling, we may for this reason have to examine the interlacing of said face picks from the back side of the structure and where said threads generally are gigged not so severe then on the face, and consequently are not broken there. In connection with pure double cloth structures, after taking away the back system of fabric, said face picks in many instances rest on the back of the face structure, i. e., between the face and the back cloth, and when then we are readily able to get at the interlacing of the face picks, if picking from the back of the face structure and where said picks have not come in contact with the teasels of the gig on account of then resting between both structures of cloth. However, under all circumstances, the analysis of these kinds of fabrics always requires more or less experience in weave-formation and fabric-structure, besides lots of patience.

WASTE IN COTTON WEAVING MILLS.

BY G. VIXSEBOXSE, Almelo, Holland.

[In this article the question of regulating the amount of waste made in a cotton mill is considered from a European standpoint. Although the methods proposed may not be suited for the American mills the article will doubtless give useful hints regarding this important mill problem.—Ed.]

The control of waste in the different rooms of a weaving mill is one of the most difficult problems to be solved by the superintendent. The waste in a spinning mill is much more easily controlled than in a weaving mill. If for instance in the carding room of a cotton spinning mill a certain quantity of raw material is treated, it is an easy matter to determine the amount of waste, because the quantity of cotton that enters the room and the quantity that leaves can be determined very easily every week. We have only to apply the rule: Quantity entering the room = quantity leaving the room + waste. From this the percentage of waste can be found. If this percentage is too great it is the duty of the overseer to adjust his cards, or to see whether there is another cause for an excessive amount of waste.

All the other rooms in the spinning mill can be controlled in the same easy manner. Yet it is quite another thing in a weaving mill.

Suppose for example that yarn is bought for a certain order for goods. This yarn is delivered by the spinner to the weaving mill in skips or cases; the skips with warp yarns are brought into the winding room, say, 50 skips or 300 lbs. net. Each winder gets a certain amount to wind on the bobbins and is required to bring the waste that is made from this yarn back to the boss, but the full bobbins are not brought back. He brings them directly to the warper, who puts them into the warping creel. He cannot say, "I have brought so many pounds to the warper." He did not know what the half full bobbins weighed, on which he began to wind. The bobbins were not all full at the same time. At the end of the week when all the skips are empty, the overseer wishes to state what percentage of waste he has made in the room. He weighs his waste, which is found to be 450 lbs. Then he takes the weight of the warping beam; let us say 54 beams of 250 lbs. net each equals 13,500 lbs. 13,500 + 450 = 13,950 lbs. of cotton yarn. The other 1,050 lbs. is on the bobbin. Who will give him the assurance that there are 1,050 lbs. on the bobbins, that are partly in the winding machine and partly in the warping creel? Nobody, of course. So in the winding room the overseer cannot state exactly the amount of waste that is made every week.

At the end of the year it is possible to say that so many pounds have entered the room, so many beams have been made, and so many pounds of waste. One can estimate the amount of yarn that remains on the bobbins, because the difference in this case is not so great that it would affect the percentage of waste in any appreciable way. The percentage of waste can be found in this way, but it is of no value to the superintendent. If the percentage is too high, the superintendent will go to the overseer and tell him he must take other measures in controlling his waste. The overseer after this

rebuke adopts stringent measures. When the winder brings back his waste, it is weighed accurately, and if the amount is excessive, he is told to work more economically. If this does not help matters, and he again brings as much waste as before, he is fined. "All right," says the winder, "if I must pay a fine, I'll take care that the waste is less." He puts a certain amount of waste into his pocket and brings the remaining portion to the boss, who is glad that the new method works so well. At the end of the year the balance is made and the superintendent finds that some thousands of pounds of yarn have entered the room but have not left it in the form of beams or waste. This amount is taken out of the mill in a manner that is not very profitable for the mill owners.

The ordinary method in many mills making different kinds of China shirtings, drills, etc., are as follows: The weaver, after having received a beam and and after having been told what sort of filling he should fetch, goes to the yarn room and fetches a box of filling yarn. When he has used the yarn, he brings the waste back to the yarn room, and fetches another box. If he brings too much waste, he gets a rebuke or a fine. After having put a part into his pocket the following time it is all right.

Where does the fault of all this lie? The answer is easy. The fault is that the weaver has not the least interest in making as little waste as possible. He is paid by the cut; the winder by the pound. The more cuts they weave and the more pounds they wind, the greater their earnings. If they find a bad cop that will not run off, and have no time to make it right, what is more natural than to tear it into pieces and bring the waste out of the mill?

It is very difficult to find a method by which the workman is convinced that it is the best for himself that he should make as little waste as possible. It is possible, however, to find a method of forcing the weaver to manipulate in the most economical way the yarn he gets for his work. Such a system controls not only the amount of waste that is brought back into the yarn room, but also the amount of yarn that has been delivered. The question is to find a satisfactory manner to bring it into practice, so as not to take too much time and yet show at a glance whether a weaver has used too much for a beam or not. After a long search I think I have found one that will give satisfaction. Every order comes into the mill accompanied by a statement of the filling required. It is first necessary to weigh all the filling which is given to the weaver. Every time he fetches his yarn he gets the same amount of yarn, say 10 lbs. All yarn boxes are of equal weight and it is only necessary to place the same weight on the scales to balance the weight of the empty box, and the amount of yarn that is given to the weaver each time. A card is used which gives the following particulars:

LOOM NO.

Date	Ends	Yds.	Cuts	Filling	Filling Needed	10	20	30	40	50	60	70	80	90
May 12	2400	40	15	20	60	12	19	26	3	10	17			
June 24	2000	20	36	16	72	24	31	6	13	20	27	4	11	

These cards are fastened on tin plates more to protect them against any rough treatment by the weavers. On the top of the card is written the number of the loom to which the weaver brings the filling. The first column is for the date on which the weaver has received the beam. In the second column is written the number of ends in the warp. The third column is for the length of the cut; next, the number of cuts; the fifth, the number of the filling; sixth, the amount of filling needed for all the cuts. After a new warp is hung by the fixer, the weaver takes the card to the overseer of the weaving room. There he gets a card for the filling and the first six columns are filled up by the overseer. To fill up the sixth column (weight of filling needed for the warp) the overseer can use a list on which the different qualities of goods are placed with the weight of filling per cut. Each of the other columns indicates the number of pounds of filling, that is the fixed quantity in each box. These columns are filled in later on by the man

who is charged with the delivery of the yarn. He writes the date in the column. If five columns are filled up with dates, 50 pounds has been delivered; six entries indicate 60 pounds of filling, etc.

Let us suppose that on May 12th the weaver gets a beam of 2,400 ends, 15 cuts of 40 yards each, 20s filling. The card is filled up by the boss as indicated. The boss sees on his list that 60 pounds of filling is needed for 15 cuts of cloth. He writes this in the sixth column and at the same time draws a red line between the two columns, 60 and 70, so that the man in the yarn room can see at a glance that the weaver has more than 60 pounds. The weaver carries the filling to the yarn room and each time the date is filled in until the sixth column is filled up and the last cut is woven. It is now evident that the weaver has not used more yarn than was marked on the list, and that no more waste was made than has been taken into account in the calculation.

Take for a second example a warp of 2,000 ends, 36 cuts of 20 yards each, filling No. 16. The record shows that the weaver used 80 pounds of filling instead of the theoretical amount, 72 pounds. From this it may be concluded that he made too much waste; but it need not always be true that it is his fault. If several weavers, who have the same quality of goods to weave, use too much yarn, it is evident that either the yarn has not been spun up to the right size, or it is so bad that the theoretical percentage of waste, which has been taken into account, is too small. If the yarn is too coarse, this can easily be shown by weighing several pieces. One of the advantages of this method is that each fault can be detected in the beginning. If the mill has to make 20,000 pieces of shirting, the superintendent can see immediately after the first warps have been woven, whether the quality of filling is right and whether he is using more than has been estimated. By this method it will become evident that for some qualities of goods he must use much more filling than for others. This occurs very often in mills that make several kinds of goods. It happens frequently that the amount of filling on which prices are based, is far less than the actual. This can only be attributed to the adjustment of reed and picks and counts of warp and filling, but the amount of this difference cannot be stated without keeping track of the filling.

The advantages of this system may be summed up as follows:

1st. The amount of waste is regulated and it is impossible for the weaver to bring any yarn out of the mill.

2d. The counts of yarn are known.

3d. The quality of yarn is known.

4th. Every fault in the filling can be detected in the beginning, so that losses can be reduced to a minimum.

5th. Every class of goods can be considered separately, enabling the calculations to be made much more easily.

THE USE OF OIL IN WORSTED COMBING.

BY JOHN BROWN.

In dealing with this subject the question naturally arises, Why is oil used in wool combing? and the general answer is that it makes the wool pass more easily through the pins in the combs and fallers, and enables the comber to get a slightly better tear, and with rather less waste. As slightly longer drafts can be used in the preparing and finishing processes, without much danger of breaking the fiber, a larger weight of wool can be put through the same machines in a given time than if the wool was combed without oil.

The oil also helps to bind the fibers together, so there is less fly or fluff. This applies also to the drawing and spinning, unless the tops have been kept in stock too long, or badly stored and the oil has become rancid. If this happens a new trouble arises for both drawer and spinner; viz., cloggginess, uneven threads and the fibers clinging to fallers, leather sheets and rollers, causing a large percentage of waste.

Although it is not of vital importance that the purest olive oil be used to lubricate wool to enable it to pass more easily through the carding engine, yet when the carded sliver has been backwashed nothing but the best Gallipoli, Candia or Spanish olive oil must

be used, otherwise bad after-effects will be the result.

The reason why there is nothing better than good olive oil is, that it does not dry out of the sliver, and oxidizes very slowly according as it contains much or little free oleic acid.

Most of the oils from southern Europe contain as little as 5 per cent. of free oleic acid. These may be used for the finest or any classes of wools with safety. Even oils containing up to 8 or 9 per cent. give good results, but above that there is a danger of cloggíness, unless the tops are carried through spinning processes within a short time. The acid also has a bad effect on the pins of combs and fallers, thus costing more than the difference between a good and a poor oil.

Every consignment of oil should be carefully tested, and any showing over 8 per cent. should be rejected if intended for use on fine wools. Another reason for testing is that olive oil is often adulterated, a thing easily done and not always easy to discover, except by chemical tests. Poppy, cocoanut, rape, linseed, whale and cottonseed (most of these drying oils) are the most frequent adulterants used.

If the oil be much adulterated the following sulphuric acid tests will demonstrate it:

(1) Place 10 drops of the oil to be tested in a colorless glass vessel, and into the centre drop a small drop of sulphuric acid. If the oil is pure it will assume a pale yellow appearance, which gradually changes to a yellowish green. If adulterated with poppy it turns to a deep yellow, which at length goes almost opaque.

(2) By the same test, rape oil produces a ring of greenish blue, around the drop of acid, with some light yellow brown streaks in the centre.

(3) If linseed oil is present, it becomes almost black.

(4) Whale oil, when the acid is dropped in, produces a movement in the centre gradually extending over it, and at length shows a red tint with violet edges.

(5) If lard or tallow has been used as an adulterant the liquid acquires a decided brown shade.

(6) A simple test to detect the presence of cotton seed oil is to pour clean water into a shallow vessel, then let one drop of the oil to be tested fall into it. If pure Gallipoli (olive) it will at once break up into fragments. A sheet of white paper gently laid upon it, if afterwards held up to the light, will show a rose-shaped webby figure. If it be adulterated with cotton seed oil the figure will be blurred.

In testing olive soap for backwashing fine wools, if a small portion be spread upon a plate, and a few drops of sulphuric acid be put upon it, it will retain its brown color if pure. If mixed with cotton-seed it will turn red. Of course in order to obtain the exact amount of adulteration, it is necessary that the tests be carried out by a properly qualified analytical chemist, but the above roughly show the presence of adulterants.

Although there is no fixed standard for the amount of oil to be used, yet it has been found that from 2 to 3 parts of oil to 100 parts of top is about the best average, being sufficient to make the wool work freely, without being excessive.

To test a top in order to know the quantity of oil it contains, put the sample (previously weighed) into a drying oven kept at 212° until all the water is evaporated, say for half an hour. Then weigh to determine the absolute dry weight, and wash the sample carefully in a vessel containing water at about 120°, adding a little good soap. Care must be taken that no fibers escape after wringing with the hands. Again rinse in clean warm water to remove any traces of soap and wring through perfectly clean, smooth rollers. Again put the wool into the drying oven, allowing about one hour, frequently testing the weight and when all evaporation has ceased the difference in weight between the first and second dryings shows the amount of oil per half pound of top.

In applying oil to the loose wool, after scouring and before carding, it is necessary to have every fiber lubricated. Several contrivances are made for this purpose, but about the simplest and most effective is the circular brush and sight feed shown at Fig. 1.

A is an oil tank with graduated gauge-

glass, B, so that the quantity of oil put on any given lot can be easily calculated; C, circular brush, driven from rollers, F; D, cover of oil tank with knife edge which springs the bristles as they revolve. On their release the oil is thrown forward in a fine spray, thus lubricating every fiber of the wool as it is thrown off from squeeze rollers by the revolving beater, E.

The arm, G, which is connected with the shipper at any convenient point, shuts off the

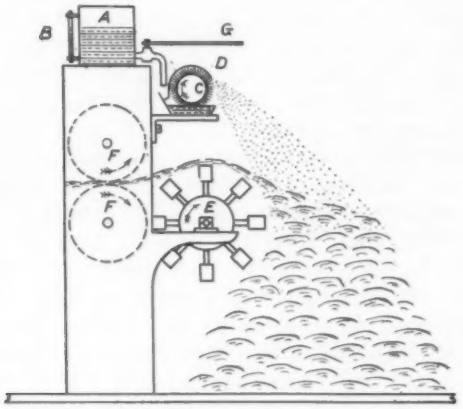


FIG. 1.

supply of oil when the washing machine is stopped. The stop valve has a long groove in the tap. By lengthening or shortening this, the quantity of oil is regulated as required.

For long, heavy wools, which require extra drying before passing to cards or preparers, the oiling apparatus is fixed to the delivery end of the drying machine. As there is no complicated mechanism, any simple drive can be adapted to it.

For oiling wool in backwashing machines, there are also several contrivances. One of the best is the "plunger" shown at Fig. 2.

It is fixed on pedestals over the creeper plate between the drying cylinders and back roller, dropping the oil at any rate required. It can be easily regulated by changing the wheel on the double stud, F.

A is a cast iron tank capable of holding several gallons of oil, so that when once charged and the proper speed obtained, it requires little or no attention, except on changing sorts, or when the amount of oil is changed.

B is a hollow plunger, planed true. Through the cross bar of the plunger, two screws actuated by the bevel wheels on the top shaft, gradually (as the plunger lowers) force the oil over the lip, H, which has slight grooves, ending in pin points to divide the oil into drops.

C is a funnel leading into the tank for charging purposes.

On the shaft, D, a sprocketed wheel is attached, driven by a chain from another sprocketed wheel generally fixed on the end of the back roller of the backwasher gill box. On the shaft, E, is a worm, double threaded to get the very slow speed at which the machine travels.

The stud, F, is made twice as long as the socket on the double gear wheel, so that the wheel can be pulled clear out of gear, when the plunger has worked to the bottom of the tank, in order to wind it up to the top

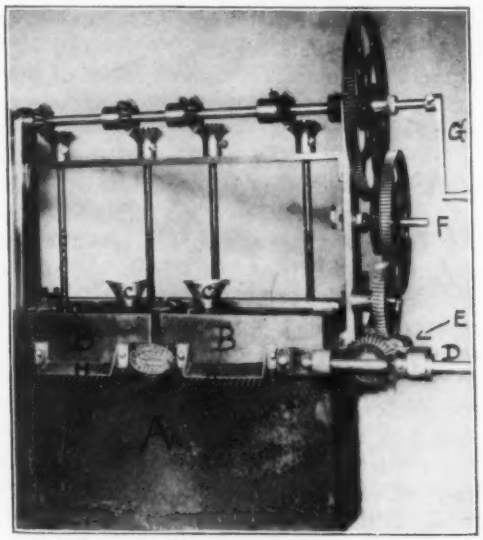


FIG. 2.

quickly by means of the handle, G.

Being geared to the backwasher it will be noted that when the machine stops the supply of oil stops also; in order to make this more effective, a small supplementary, solid plunger, fixed between the plunger proper

and the end of tank, not shown in Fig. 2, is connected by a lever to the starting rod of the backwasher. This lever raises the small plunger out of the tank, thus lowering slightly the level of the oil, preventing any dropping after the machine has stopped. As soon as the machine starts again the plunger is dropped into the tank, and the delivery begins at once.

It is not as necessary for the oil to be as evenly and well distributed in the backwashing as in the scouring process, because after the oil is put on in the backwash it has to pass through the gill box; then through two preparers and the punch box, for Noble combs, so that the oil is thoroughly and well distributed by the many operations before reaching the comb itself.

Although the foregoing does not exhaust the subject, yet sufficient has been said to show to those with a knowledge of Botany woolcombing what to adopt and what to avoid.

FIG. 1.

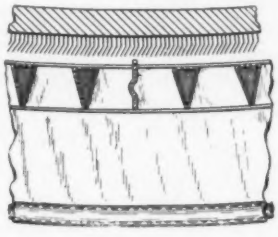


FIG. 2.

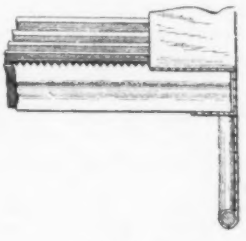


FIG. 3.

A GRID FOR WOOLEN CARDS.

A GRID FOR WOOLEN CARDS.

The advantages resulting from the use of a properly constructed grid under woolen cards are a saving of good stock and the removal of seeds and other foreign material. The inventor of a new form of grid, recently patented, claims greater efficiency for his device than has hitherto been attained. Fig. 1 is a longitudinal section, showing the card cylinder and grid; Fig. 2 shows the grid and cylinder clothing; Fig. 3 is a perspective view of the grid.

The triangular bars are arranged in an arc parallel with the surface of the card-cylinder, with the base portions uppermost and their apexes extending downward, as shown in Fig. 2. The triangular bars, which are in the central portion of the screen, are constructed in cross section in the form of isosceles triangles, as shown in Fig. 2. As the bars approach the end portions of the screen the form of the triangle is gradually changed to a right angle triangle, as shown in Fig. 1. These bars in the end portions of the screen are arranged with their right angular sides facing the central portion of the screen, the other side being inclined toward the central portion. With this construction and arrangement of the bars the dirt and foreign substances which are removed from the fibers will fall through the openings between the bars and will engage the inclined sides of the bars and be directed downward away from the bars, obviating the liability of the openings becoming choked.

Extending across the screen between the triangular bars are a series of flat bars, three in number and located one in the centre and one adjacent to each end of the screen, as shown in Fig. 1. These bars are mounted in line with the radius of the card-cylinder and are secured at their ends between brackets, and in the same manner as the triangular bars. These bars are constructed and arranged so that their upper edges will extend above the bars and in close proximity to the periphery of the card-cylinder, as shown in Fig. 2. The upper edges are preferably provided with a series of teeth, as shown in Fig. 3.

The inventor claims that with this construction a very efficient screen is produced, the triangular bars serving to shake out the dirt and the flat bars extracting any foreign substances from the fibers which will not be shaken out by the other bars.

Questions and Answers

Under this head we undertake to answer, free of charge, to the best of our ability, any pertinent inquiry pertaining to textile matters received from any regular subscriber to the TEXTILE WORLD RECORD. Questions should be stated as briefly and concisely as possible. Inquiries pertaining to textile processes, machinery, improvements, methods of management, the markets, etc., are especially invited, as well as any legitimate discussion on the views expressed. All inquiries must be accompanied by the name of the person inquiring ,not for publication, but as an evidence of good faith.

For reply to questions that are not of general interest to readers of textile journals, such as those relating to the composition of yarns, analysis of fabrics, etc., we will charge the enquirer with the cost of the investigation.

Rolling Selvages.

Editor Textile World Record:

Is there any way to make selvages on woolen dress goods, 3 and 1 weave, so that they will not roll in going through the finishing process?

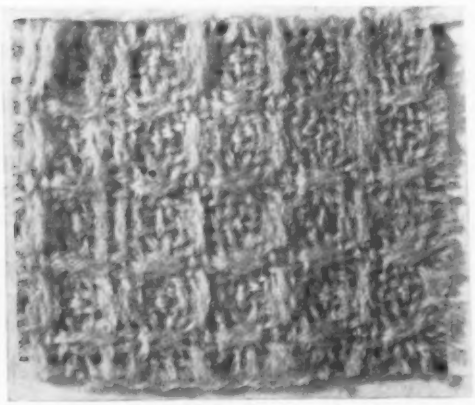
Hazlewood (902).

An answer to this question appeared in our issue for July, 1906.

Selvage Motion for Narrow Fabrics.

Editor Textile World Record:

We are making loosely woven shawls on very wide Crompton & Knowles looms, with new jacquard heads. Instead of making a wide fabric of this kind we want to use the same looms on narrow scarfs, running about four or six scarfs across



the loom at the same time. In order to do this we must have a selvage that will bind each pick of the filling so it can not pull out, which is very likely to happen on such a loosely woven fabric. Is there any selvage motion on the market that will do this? Newton (932).

Crompton & Knowles Loom Works of Worcester have a very good shuttle motion and one that I think will suit the class of goods mentioned. They have more than one, but for such loose material I would suggest the one with the small shuttle. The edges of the shawls will be rough because the shawls will have to be cut down the selvage after weaving. If it is intended to have a fringe around the edge the roughness will not matter.

Hargraves.

Magnesium Chloride in Carbonizing.

Editor Textile World Record:

Can you give us any information as to the use of magnesium chloride in carbonizing wool in Germany? Milton (937).

The following reference to carbonizing with chloride of magnesium is found in Ganswindt "Woolwascherei und Karbonisation":

Carbonizing with choride of magnesium was first mentioned in a patent obtained by Dr. A. Frank of Charlottenburg, in 1877. Frank stated that the use of this material for carbonizing was possible by reason of its decomposition into muriatic acid and magnesia. He recommended that the chloride solution be made up at 5° or 6° Be, but later experience has shown that this strength is too low and that better results are obtained at 9° or even 13° Be.

The wool material to be carbonized is impregnated with the solution, dried and then exposed to a high temperature at which the vegetable matter is carbonized. The decomposition of the chloride of magnesium is similar to that of chloride of aluminium and requires a high temperature. Chloride of aluminium can be decomposed at 200° to 250° F, while chloride of magnesium requires 250° to 300° F. The goods must be free from soap and fatty materials before being entered into the solution, otherwise magnesium soaps will be formed, which are later burnt into the fiber by the high carbonizing temperature. The vegetable matter begins to be carbonized at 245° to 265°, but at this temperature the process is so slow that it has been found necessary to raise the temperature from 280° to 300°. Above this point there is danger of injurir g the fiber and making it yellow.

Setting for Cards.

Editor Textile World Record:

How should the different parts of a card be set and at what speeds to make the strongest yarn of 7/8-inch cotton? Dunstan (901).

We find the following settings give very good results in strength and quality of the carded sliver: Feed plates to the licker, 12/1000; licker to cylinder, 10/1000; knife to licker, 10/1000; tops to cylinder, 10/1000 at back to 7/1000 at front, or as close as they can be run without striking; doffer, 7/1000; screen, 34/1000; weight of lap, 13 ozs. per yard; draft, 98; doffer, 13 r. p. m.; cylinder, 165 r. p. m. We find that a medium short draft and fairly light speed of doffer give stronger yarn, but do not make so clean carding. M. F. J.

Seven-eighths inch staple is rather poor stock to make strong yarn; the slower the speed of the doffer and the shorter the draft the stronger the yarn will be. I should run the doffer 8 r. p. m. with a draft of about 80, setting the parts as follows: Tops, 9/1000; doffer, 7/1000; licker, 7/1000; feed roll, 10/1000. Hector.

Although "Dunstan" does not state whether a revolving flat card is referred to or not, we will assume this to be the machine under consideration.

The main cylinder is 50 inches diameter, and under average conditions could make about 170 to 175 r. p. m. on the class of work usually expected from 7/8 inch cotton. The licker would then make about 450 r. p. m., providing it is a modern metallic covered style of from 9 to 9 1/2 inches diameter.

The diameter of the doffer may be 24, 26, 27 or 28 inches, and its speed will vary according to its diameter, and the quality of carding required; the latter being influenced by the weight of the sliver made, and the production necessary from each machine.

Assuming a 27-inch doffer is to be used, a speed of 11 or 12 revolutions per minute, and a production of 850 to 900 pounds per week could be run, with a reasonably good quality of carding on a medium weight sliver.

The flats usually move about 3 to 3 1/4 inches per minute over the cylinder surface, on cotton such as specified.

The following settings are given as representing approximate distances or gauge used between the various surfaces to obtain good carding:

Between licker and feed-plate, 10/1000 inch.
Between licker and cylinder, 8/1000 inch.
Between licker and top mote knife, 15/1000 inch.
Between licker and bottom mote knife, 11/1000 inch.
Between cylinder and back of cylinder screen, 17/1000 inch.
Between cylinder and centre of cylinder screen, 3/32 inch.
Between cylinder and front of cylinder screen, 3/16 inch.
Between cylinder and flats, 10/1000 inch.
Between cylinder and doffer, 6/1000 or 7/1000 inch.
Between cylinder and "stripping" plate, 29/1000 to 34/1000 inch.
Between doffer and doffer comb, 10/1000 of an inch.

Bolster.

For a revolving flat card with 50-inch cylinder, 27-inch doffer and 9 1/2-inch licker-in, I would give the following speeds: Cylinder, 170 r. p. m.; doffer, 15 r. p. m.; licker-in, 450 r. p. m.; top flats, 2 1/2 inches per minute. The settings should be as follows: Feed plate to licker-in, 12/1000; bars to licker-in, 10/1000; under screen to licker-in and cylinder, 10/1000; under screen at bottom to cylinder, 34/1000; under screen to cylinder at front, 1/4 inch; licker-in to cylinder, 7/1000. Top flats to cylinder: Back, 11; middle, 10; front, 9; doffer to cylinder, 7/1000; doffer comb to doffer, 7/1000; back plate from cylinder, 17 to 22/1000; front plate from cylinder, 17 to 22/1000; front plate from flats, 17 to 22/1000.

These settings would be suitable for running a lap from 13 to 14 ounces per yard and making about a 60-grain sliver. The production should be about 1,000 pounds per week of 58 hours. The feed plate may be set closer to the licker-in if a lighter lap is used, or farther away if the lap is heavier. In setting the front plate the point of the plate should be carried up between the cylinder and flats until the gauges used will just pass between the flats and plate and the cylinder and plate. If the flat stripping is too heavy the front plate should be set a little closer to the cylinder and away from the flats: if too light, set closer to the top flats. W. S.

Bleeding Colors.

Editor Textile World Record:

I would like to inquire if you have bought any blue negligee shirts this season as it would seem that the conditions would warrant a live editorial from you taking the dyers to task. I have been buying all the best brands and paid all prices for shirts this summer, and have failed to find one that has been respectably dyed. After one washing they resemble the rainbow.

Dickson (918).

"Dickson" evidently has a grievance against the dyer. Instead of going to the dealer who sold him the inferior goods, he is trying to make the editor of the "Textile World Record" say things about the dyer. The dyer has many faults, but where does he stand in this case? "Dickson" says

the best brands don't wash; my advice is to get a new laundress, for any laundress who would ruin the leading brands of blue in one washing should not be at large. In many instances the modern laundry does not wash garments; it bleaches them. The shirts are given a bath in chlorine, then soured with acid and then boiling soap, and when the color bleaches out the dyer is blamed. "Dickson" has evidently been duped. Any observing person can see hundreds of blue shirts and dresses that have been washed dozens of times and still do not look like a rainbow. I have a blue shirt and it cost me all sorts of money—to be accurate, fifty cents. It has been washed every week in a laundry all summer and the color is good yet.

Many mills dye blues that will stand a decent washing, that is, one to remove dirt, but no dyer can dye blues that cannot be discharged with chemicals. If "Dickson" cannot find an indigo blue shirting that will stand the attacks of his laundress, then he should get some mill to make him a shirt of Indanthrene Blue, which will stand until there is nothing left of the fabric.

Baumwolle.

Mildew on Cotton Goods.

Editor Textile World Record:

Do you know any way to take mildew stains from cotton goods? Melrose (924).

The following extract from "The Chemistry and Practice of Finishing," by Percy Bean, may give our correspondent some suggestions in regard to the causes of this trouble:

Cloth frequently arrives at the bleach works already mildewed and when this is the case its condition should be noted with a request for instructions sent immediately to the manufacturer or merchant. If such a cloth is bleached within a week or two of its arrival, there need be no fear of further damage, as the mildew growths attack the starchy matters of the size first, and it is only after prolonged contact that the cotton fibre is deteriorated. As a matter of fact, if such mildewed cloth is well stored with free access to air it is probable that the mildew will remain dormant, if it be not actually destroyed.

Mildew stains occur in brownish yellow and sometimes black patches on the fabric. They are frequently caused during bleaching by the cloth being left in a damp state in contact with wooden stillages. These stillages are more or less coated with a fungoid growth peculiar to wood. The stain may show only after the cloth is starched and finished, when a rapid development of the mildew, taken up by the wet cloth, occurs. If the stain be noticed before the cloth is starched and finished it may be removed by rechemicking and resouring, but if the cloth has been starched it will be necessary to remove the whole of the dressing before attempting the treatment with chemicals, otherwise the stain will in all probability make its appearance again after the cloth has been refinished and stored. The explanation of this is as follows. When the cloth is imperfectly cleared of the starchy matters there is a danger that the starch, not removed, will settle in various portions of the cloth, after it has been piled up in heaps, and will carry along with it any sediment or dirt, which the wash water contained. Such stains will be very difficult to detect at this stage, especially if the cloth be laid flat, or in heaps, and it is only by holding the cloth up to the light that they become apparent. The result is that when the cloth is again finished with blued starch, the cleaner portion will absorb the starch and blue, while the stained portion will resist it; this treatment makes the stain apparent at once. Starch cannot be easily removed by boiling with water and it is therefore necessary to digest the cloth in a solution of malt, the diastase of which converts the insoluble starch into sugar; the latter substance being readily removed by boiling water. The method of procedure is as follows:

Prepare, by steeping ground malt in the proportion of one ounce of malt to one gallon of water, sufficient liquor to immerse the cloth to be treated. The temperature of the water should not exceed 140° to 150° F. The cloth should be immersed in this solution for a few hours. During this time the starch is rendered soluble and may be readily removed by a thorough washing.

Laps on Cards.

Editor Textile World Record:

If one is using, say, a 40-inch card, should the lap be made wider than 40 inches, possibly 41 or 42, or should the lap be made just the width of the wire on the cylinder? Is there ever any advantage in making the laps narrower than the wire on the card? Duluth (936).

The usual, and probably the best, method is to make a lap 40 inches wide for a 40-inch card and then adjust the lap guides on the feed plate so that at the point where it passes under the feed roll it is about 39 inches wide. This will crowd the edges so that a little stronger selvage is obtained and will keep the web just clear of the extreme edges of the doffer. Some mills use wider or narrower laps in cases where new cards have been put in and old pickers are used, but I do not know of any new machinery in which the picker makes laps two inches wider than the cards call for.

Bolster.

The lap should be the width of the carding surface of the card. It is often well to have a guide on the lap stand to turn in the edge of the lap about one-half or one inch on each side. As cards are now built they will do good work the full width of the wire without appreciable side waste; there will also be a good selvage on the web as it leaves the doffer unless the stock is too light. Short stock cannot be run so light as long stock and give good results, as it will not hold together. I would advise a 40-inch lap for a 40-inch card and would turn the edge of the lap about half an inch on each side. With the old wood top cards the laps were generally made from two to four inches narrower than the wire on the cylinder in order to prevent side waste which would clog the cylinder. The modern card is built so that every point of the wire shall do its part of the work.

J. F. M.

Laboratory Tests for the Dyehouse.

Editor Textile World Record:

We have a laboratory and dyehouse in connection with our mill. The chemist uses the metric system; the dyer uses the English system of weights and measures. They find considerable difficulty in reducing the laboratory formulas to the English basis. Will you suggest some plan by which the difficulty can be removed or reduced?

Llano (665).

The following answer to this question has been prepared by a manufacturer of long experience:

"We met and overcame years ago the difficulty to which Llano refers, and our chemist and dyer have no more trouble in understanding each other's formulas, although one uses the metric and the other the English weights. The proportions of different dyes and chemicals in color recipes are expressed in percentages based on the quantity of material to be dyed. To make the quantities of dyestuff correspond with the percentage, 100 pounds of the material to be colored is taken as a basis. Thus one of our recipes for brown on cotton is given as follows:

"For 100 lbs. cotton:

4 lbs. Soda Ash.
4 lbs. Cryst. Sodium Sulphide.
8 lbs. Immedial Brown.
40 lbs. Salt.

"A recipe like the above gives the percentage of each dyestuff and chemical without reduction. Four pounds of soda ash for 100 pounds of cotton is 4 per cent. of soda ash on cotton to be dyed. The percentage formula can be reduced to metric weights by simply changing pounds to kilos, or other metric units. Thus for 100 kilos of cotton, 4 kilos of soda ash would be required. By basing all dye recipes on percentages as far as possible, in both the laboratory and dyehouse, the difficulty of converting from metric to English and from English to metric will disappear.

"If a recipe based on some other quantity than 100 units of weight is to be reduced, it should first be brought to a percentage basis.

"Ex. Reduce the following recipe to a metric basis for the laboratory:

For 75 lbs. woolen cloth.

3 lbs. Cyanole Green B (4%).
¾ lbs. Orange G G (1%).
1⅛ lbs. Formyl Violet S 4 B (1½%).

"By reducing the pounds of each material to a basis of 100 pounds of cloth, the percentages given in parentheses are obtained. These can be applied to laboratory tests on any desired basis of weight, whether expressed in grains, grammes, centigrammes, or what not. Thus for 80 grammes the following quantities would be required:

3.2 grammes Green.
.8 grammes Orange.
1.2 grammes Violet.

"Conversely if the dyer wants to color the material in parts of even hundreds of pounds, say 250 pounds, he can easily calculate the dyestuff from the percentage formula. Thus:

10 lbs. Green.
2½ lbs. Orange..
3¾ lbs. Violet.

"After we adopted this system for both laboratory and dyehouse, our dyer suggested that it could be still further improved by using only the pound and its fractional parts for weighing dyestuffs for his work. This he has been doing for years, using not only the binary divisions (1/2, 1/4, 1/8, 1/16) of a pound, but also the decimal divisions (1/10 and 1/100). He finds that the binary fractions correspond with an even number of ounces, while the decimal divisions correspond with 700 and 70 grains. In practice, however, he considers the pound as the basis for weight of both the material and the dyes. Our chemist uses both the gramme and the grain as a basis for his laboratory work and rather prefers the grain because of its more convenient size. Many of his tests are made on a basis of 100 grains. An approximation of that quantity in metric weights would be 10 grammes or 1,000 centigrammes. He thinks the 10 is too small and the 1,000 too large a basis; in other words, that the gramme is too large and the centigramme too small for these dye tests. I asked him why he did not use the decigramme and he said it was because no one else seemed to use it for that purpose, but this does not seem to be a convincing reason."

Sandoval.

KNITTING DEPARTMENT.

For Knitting Mill Machinery, Equipment and Supplies, see pages 236 to 253. Also Buyers' Index.

THE KNIT GOODS SITUATION.

Owing to the fact that the majority of knit underwear manufacturers will not show samples nor quote prices on fall lines until after January 1st, we are unable to give very much information regarding these lines in this issue. Manufacturers and their agents are having plenty of time to get well primed for the January campaign, and in figuring over costs, etc., have done everything possible to fix up prices that would encourage early and active buying, but from all that we can gather, in no case has it been possible to name any lower prices than those at which the early business was taken last year. It is conceded that in many instances to name last season's prices means sacrificing some profits. Even those manufacturers who in former years have shown an inclination to speculate upon raw material conditions, are not willing to take such chances this season.

Some manufacturers of ladies' combed yarn ribbed goods have opened their lines and have procured probably about two-thirds of their ordinary business on the basis of $3.75 for 8 pound, fine stitch, silk trimmed goods, but aside from these, we think the business booked up to the present writing has been of small volume.

There were present at the November meeting of the New York State Knit Goods Manufactures' Association, representatives of fifty-four mills, which means about 75 per cent. of the knit goods production of the state. In addition to agreeing to withhold showing the fall lines until after January 1st, it was decided to adopt a uniform order blank, copy of which appears in another column. It was reported at that meeting that a number of manufacturers of balbriggan underwear were curtailing their production and it was suggested that the fleeced goods manufacturers would be compelled to do the same in order to prevent the market from weakening.

It looks at the present time as though buyers will be able to place their orders on the majority of lines at practically last season's prices. We think it will be possible to obtain ladies' 6 pound ribbed goods at $1.95 to $2.00, and 7 pound extra sizes at about $2.25, and that men's fleeces made by the better class of manufacturers, weighing 12 pounds on size 40, will be sold at about $3.75.

There is an increasing demand for men's ribbed goods. In some quarters they are taking the place of fleeces to retail at 50 cents. A number of retailers report that the consumers who have bought fleeces for years now want something to take their place.

It is reported that the Morris Mills will discontinue making the two thread ribbed garment that they have made for several years past, in which event there will be quite a gap for some other manufacturer to fill.

There has been an unfilled demand during the past season for a men's ecru ribbed shirt to sell for 50 cents. It looks to the writer as if good business might be done on a garment of this grade made in plain stitch, the shirts made with self front and with a light brushing to get to the jobber at about $3.75.

The several lines of men's combed ribbed goods that were on the market last year to sell at $1.00 are being shown again for next fall at from $7.12 1/2 net to $7.50 net. The Bradford line of merino ribbed goods are also being shown at $7.50 regular. Wright's Health Underwear Co. are showing one at $7.25 net in heavy weight and also an 8 pound combed garment at $7.12 1/2 net. As there is an increasing demand for a garment of this weight, it seems as if a good business might be done on this number. They also show a line of high colored ribbed goods at $9.00, grey merino ribbed at $10.50, and a line of mercerized and worsted and all worsted at $14.50.

The Lewis Jones Knitting Co. are showing a ladies' semi-combed tuck stitch bleached garment at $3.25, which looks par-

ticularly good to those who are in a position to use tuck stitches, but the call for fine stitches is increasing to such an extent that some retailers will not buy tucks for their regular lines. Bleached goods in every line are growing in favor every day and the orders now being placed show a considerable decrease in peeler cottons and grey wools as compared with white.

Retailers inform us that during the past season there has been a very heavy demand for the lighter weights in fine stitch goods made without any brushing. Mills like the Carter, Stretton and Springfield Co.'s, which make large quantities of this class of goods, have been very hard pressed to keep up with their orders.

HOSIERY.

The early trips made by the hosiery salesmen on fall lines did not result very satisfactorily. A few of those representing the more important makers who were out very early, took some business from a few of the larger jobbers, but these orders were so few in number that it will be necessary to make another trip after the first of the year.

Buyers are beginning to ask where they will be able to buy fleeced and heavy weight cotton hosiery. Several manufacturers have announced their determination to discontinue these lines and no new ones are taking their places. The Burson Knitting Co. have given up making heavy weights and will hereafter confine their attention to making only medium light weights and gauzes. Some of the more important manufacturers who will still make fleeced goods will not open their lines until January 1st. Of course this action practically means that the others will delay the soliciting of business until the same time.

While manufacturers of wool hosiery have not taken a large volume of business, yet there is a tendency among them to get better prices than those quoted a month ago. Owing to the small number of manufacturers of this class of trade, it should not be a difficult matter to get together and procure some justifiable advances, and the probabilities are, when active work begins again in January, that increased prices of 2 1/2c. to 5c. will be asked.

News from the German hosiery manufacturing district is causing some uneasiness among domestic manufacturers. It is said they have been obliged to accept many cancellations from the United States, as well as other markets in the world. As a consequence, their prices are becoming less firm and they do not show the same independence as in the past three years. This taken in connection with the fact that the administration of our tariff laws is changing somewhat in favor of the German manufacturers is causing our own makers of fine gauge goods some anxiety. There was a large increase of importations to the United States for the months of July, August and September. At that time prices were high and now our manufacturers are asking themselves what will happen with low and irregular prices.

The latest show of novelties in ladies' hosiery are boot and ankle effect, painted insteps and graduated shaded effects in high colors. Plaids are also shown in a great variety, and solid colors in both high and modest shades continue to be popular.

In men's half hose the real smart thing is one that begins at the foot with a deep solid color and ends at the top with a fourth shading of the same color. There is a good demand for plaids for men and for pastel shades, also for ivy and mint shades of green.

SWEATERS.

There has been a very heavy demand for V neck sweater coats for men, boys and misses during the past month. Manufacturers making this class of goods have been working over time and shipping a great many cases of the goods by express, as buyers could not wait for freight shipments. The greatest demand has been for grey with red, blue and self trimming.

One manufacturer of Ilion, New York, has secured a patent on a V neck garment with large opening to which an adjustable flap is attached. This enables the wearer to regulate the size of the opening to meet the changing conditions of the temperature.

THE NEW YORK ORDER BLANK.

The following is a copy of the uniform blank adopted by the New York State Knit Goods Manufacturers' Association at their

meeting held at Utica on November 26th. This blank is similar to the one submitted to the Association at their June meeting, except that a clause has been added to the effect that both buyer and seller must properly sign the blank.

This order is placed subject to manufacturer's contingencies, and under terms, prices and conditions as stated, and involving the purchase of material and labor, this order cannot be countermanded.

If the production of the mill shall be curtailed by strikes, lock-outs, fire, or any unavoidable contingencies, deliveries shall only be demanded proportionate to the production.

This order is placed in good faith and binds the buyer to accept all of the quantity bought, whether the details are specified at time of sale, or to be given later.

Details for this order to be given within sixty days from the date thereof, or the manufacturer shall have the right to fill this order with standard assortments of sizes.

If the buyer fails to pay for any delivery under any contract, the seller according to the terms thereof shall have the option to cancel any or all contracts and to suspend future deliveries until all payments in arrears have been made.

This contract is not valid unless properly signed by the contracting parties.

PAYING KNITTERS BY THE PIECE.

Editor Textile World Record:

Can good results be obtained by paying machine operators by the piece for knitting underwear? Pontiac (951).

Piece work in any and every department of a knitting mill is the best for both parties if it is applied in a spirit of fairness. At one time when in charge of a knitting mill in the South I was not satisfied with the production of my knitting machines. After feeling my way and finding that the operators would not consent to piece work without trouble, the boss knitter was instructed to weigh all goods, giving as a reason that we could not tell how many dozen we could get out of the rolls as the fabric seemed to vary so much in weight per dozen. The weight and number of the machine were marked on every roll and also on a book especially adapted for that purpose, so we could then trace the cause of the irregularity.

After the first week we took account of the work done by each knitter. For all over a certain amount we paid the knitters 30 cents a hundred pounds and told them that we would give 30 cents for every 100 pounds that they turned off above the last week's average. Inside of a month we had increased our production one-third. Individual pride and the prospect of making more money stimulated them to keep the machines going. They not only increased the production but paid more attention to their work and did it better. Piece work is all right until you strike bad yarn. Then it is that you must act with fairness. A knitter, although not responsible for bad yarn, is frequently unable to run more than one-half his machines steadily. As a result of poor yarn a knitter is frequently unable to earn more than half of his regular wages. If allowance is not made the help will soon be dissatisfied with piece work.

With the employer the main objection to piece work is bad work. A careless knitter will keep his frames going although making bad work. A good way to mark goods so that bad work can be traced, is to have tapes of different fast colors, white, black, red, etc., and give to each operator a special combination of two colors. A combination of the three colors will answer for a mill of almost any size. Small pieces of tape are cut about 8 inches long. Tie them to the end of the rolls marking the size in this way. One knot for 4 inches, two knots for 5 inches, etc. Instruct the cutters to keep waste and seconds separate for each color. It involves a little trouble, but will pay in the end, as you can tell very easily the percentage of waste for every operator. Atlantic.

From my experience I would say that knitting, or any other operation, can be done on the piece work basis and good results obtained. It makes no difference whether it is piece work or day work, one must keep a very close tab on each operator in order to get good results. If they are on day work you must keep a closer watch in order to get production. On the other hand, if the operator is on piece work, all you have to look out for is quality; the operator will take care of the quantity.

If a mill is running on a large variety of goods where a great many changes must be made, and operators are continually changed from one class of work to another, I do not believe it is good policy to have the operators on piece work. However, if each operator has the same set of frames at all times, there is no reason why good results cannot be obtained.

To get good results on piece work the price must be fixed so that the operator can make good wages without having to run more frames than he can take care of properly. When the piece work price is fixed, divide the machines evenly among the operators, and keep a close watch on each operator's work for one week. At the end of that time, take one machine away from the operator who has given the poorest results and give it to the operator who has given the best results, making him understand that the number of machines he can have, which means, of course, the wages he earns, depends entirely on himself.

Give each operator to understand that she can have as many machines as she can handle right.

To make this system a success the number of machines given to the operator must be based on actual results. This of course means that each operator's record must be taken each week, and posted where all can see who has had the smallest percentage of bad work and who has had the greatest. The foreman must see that this rule is followed out, remembering that if he neglects his work, he cannot expect that the operators will attend to theirs. This method has been used by the writer and found satisfactory. I also found that just as soon as the tab system was dropped the quality of the work dropped with it. It is a good plan for the superintendent to note each operator's pay every week. When one draws an extra large amount, look into it and see if the foreman is not neglecting his work.

Badger.

After a practical experience of over five years paying the operators on knitting machines on underwear by the piece, I am convinced that such method is advantageous.

On piece work the operators earn a large wage, the cost per dozen for knitting is less and the production per day is increased 25 per cent. The machinery is more productive, the operators more efficient, as they are more interested in their work. Moreover the quality of the work is improved.

On the day work system the operators were paid from $1.00 to $1.25 per day according to their ability. Each operator tended four machines, that is to say two tables of two cylinders each.

When the change from day work to piece work was made, the operator tended three cylinders instead of four. More operators were thus required. Additional spare hands were also put on and paid by the piece.

The prices were based on so much per pound of knitted cloth, varying with the gauge, size of yarn and number of feeds on a machine. These prices had to be based on practical experience. Once fixed it would be a difficult matter to change them, at least to a lower figure, without causing a strike of the hands. The prices we adopted have proved satisfactory not only to the operators, but also to the proprietors of the mill.

At first it was thought that reducing the number of cylinders from four to three per operator and increasing the spare help besides, would result in an increased cost of knitting. Experience proved otherwise, as the increase of 25 per cent. in the production more than offset the wages of the additional help.

More work would be produced by an operator keeping three cylinders running constantly, than if she tried to tend to four, as one or more of the four would be stopped at frequent intervals. If the operator tends four cyliinders, the bobbins on two of them may run out at the same time; needles may break in both. Thus both may be stopped while the operator puts on new bobbins or replaces the broken needles. There may be times when even three out of the four are standing while the operator is tending to one of them. The production was increased 25 per cent. by having an operator attend to only three cylinders instead of four. The number of the spare hands was increased for the same purpose. Should an operator have

two cylinders stopped it is the duty of the spare hand to get them started as soon as possible. The spare hand takes the place of the operator who might be absent. Each of these spare hands was in charge of three tables or twelve cylinders and were paid by the pound at a price based on the production of the twelve cylinders. Each operator was interested in keeping her three cylinders running and each spare hand in seeing that her twelve cylinders were not allowed to stand. It may be thought that some of the operators would allow the spare hand to do most of their work, but it was thoroughly understood that the spare hand assisted only when the operator was busy with one of her other machines. Suppose two cylinders stopped at the same time, the operator would go to one and the spare hand, if not engaged with some other machine, would go to the other. If the operator got her machine started first, she would assist the spare hand. If the spare hand saw one of the other operators had two cylinders stopped, she would at once leave the first operator to finish starting up her own machine and go to the assistance of the other. In this manner the spare hand assisted all equally.

After the piece work plan was adopted none of the operators ever earned less than they had been receiving on day work. At the same time they were actually producing more cloth than when on day work.

The only argument that some manufacturers may put forth against the piece work plan, is that it results in a lot of bad work. Experience proves that this is not so, because a knitting machine as a rule will not run steadily and produce bad work. If it is making holes, it will be continually stopping. The operator soon learns it is better for her interest to have the machine fixed, as only when it is making good work will the machine run steadily. The piece work plan results in better work and greater production. Greater production results in a reduced cost per dozen.

Each mill would have to decide on the scale of prices per pound for different kinds of work. Each roll of cloth taken from the machine was weighed, marked and tagged in order to keep a record of what styles were made. This record answered as well for the number of pounds each operator produced, and from this record the pay roll was made up.

Noel Howe.

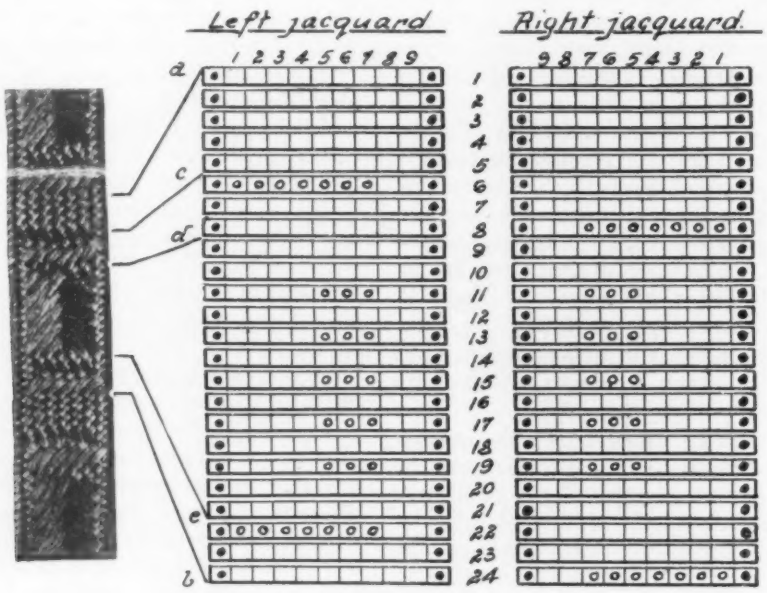


Fig 94.

THE MANUFACTURE OF BRAID IN THE UNITED STATES.

(Continued from December.)

In the last number we analyzed a pattern of bi-circle braid made with two contrasting colors. Fig. 94 shows a pattern in which the figured effect is produced merely by a change of the weave. Twenty-four cards are required to form this pattern. The pattern is divided into four parts. The first, a to c, is a plain braid; by counting the lines

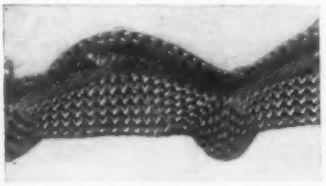


FIG. 96.

on the pattern, we find that this portion is five lines long, that it, it covers five picks or plaits. This means that the first five cards are blanks, causing the carriers to remain on the inner track.

The second portion, c to d, requires three cards, 6, 7 and 8. This portion of the braid shows a cross soutache, and is formed by first opening the left switches, 1 to 7, on the sixth card of the left jacquard, causing seven carriers to run from the inner to the outer track, by opening afterwards the right switches, 1 to 7, of the right jacquard, as shown by the seven perforations in the eighth card. This causes seven of the right carriers to run over one gear of the outer track.

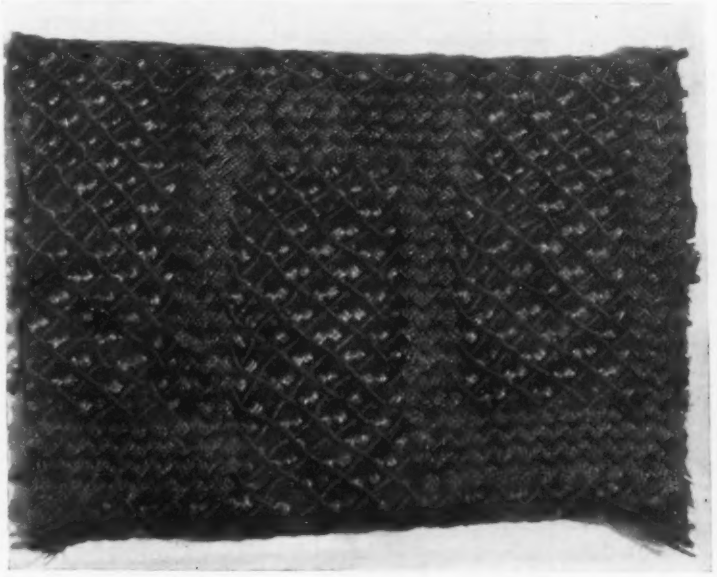


FIG. 95.

There are no perforations shown for switches, 8 and 9, on either jacquard. This indicates that on the last two gears on each side of the machine no change from the regular crossing of the carriers occurs, but that a plain braid is formed continuously, as shown by the illustration of the braid at the left at Fig. 94. One line on each side of the braid is a regular structure and forms a border for the figured effects produced by the change of weave.

The third portion, d to e, requires thirteen cards, 9 to 21. This part shows a soutache

in the centre of the braid running lengthwise. This is formed by running all the left carriers on the left half of the braid and all the right carriers on the right half of the braid over three outer gears successively, as shown on cards 11, 13, 15, 17 and 19. It will be noticed that three carriers controlled on the cards are the same as those of 6, 7 and 8.

Fig. 95 shows an elaborate dress trimming, made on a 24-line bi-circle machine, by using 4-line silk braid, silk gimp and artificial silk on the braider carriers. The pattern is a simple one and similar to the

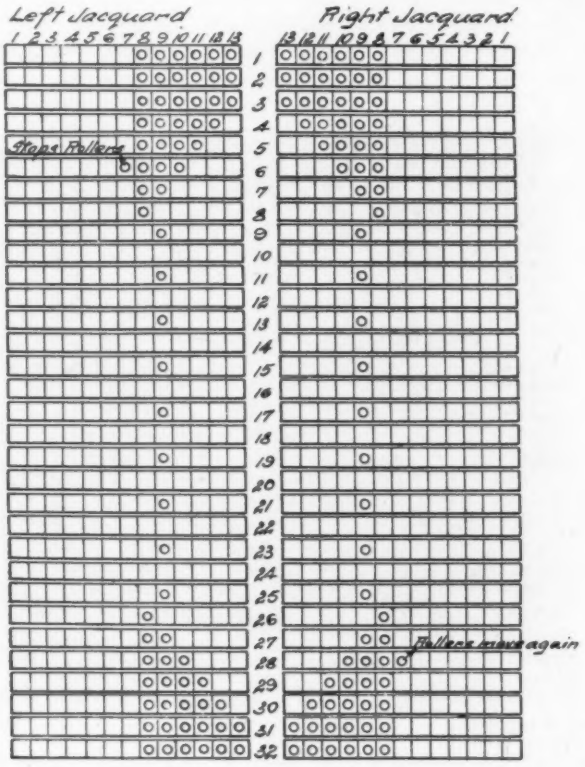


FIG. 97.

by the left jacquard and three carriers controlled by the right jacquard change their course by passing to the outer track simultaneously, and that this is repeated five times. The result of this crossing of the carriers is a wide soutache having its centre rib in line with the centre of the braid. Cards 9 and 10, as well as 20 and 21, are without perforations, indicating that one line of plain braid is formed on either side of the loose soutache effect lengthways of the braid.

The fourth portion, e to b, requires three cards, 22, 23 and 24. This is a repetition of the second portion, c to d; the perforations

one illustrated at Fig. 93 in the December issue.

Fig. 96 illustrates a peculiar two-colored effect. The wavy form of the one edge of this braid, and the half circle projections of the opposite edge are produced by uneven tension weights in connection with a differential speed take-up, which will be described later. Fig. 97 shows a very peculiar pattern, known as the medallion effect. This braid consists of a succession of oval portions superimposed one upon the other. It requires 32 cards. The method of changing the weave will be readily understood, as they

are very similar to those described in connection with Fig. 94.

Cards 1, 2, 3, 4, 5 and 6 will produce the lower end of the upper section of this braid by causing three times 6, then 5, then 4, then 3, of the left carriers of the right side of the braid and of the right carriers on the left side of the braid to pass to the outer

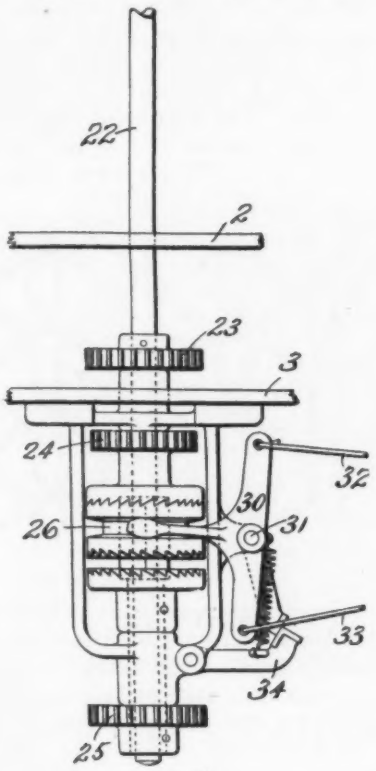


FIG. 98.

track. On the sixth card a perforation is provided at switch 7 of the left jacquard, which causes the take-up roller to stand and to stop the pulling out of the braid, which remains stationary in the braid former until card 28 actuates switch 7 of the right jacquard and causes the take-up rollers to move and deliver the braid again. The intervening portion of the braid, governed by cards 6 to 28, is made on the inner run, except that every second card causes one carrier from the left and one carrier from the right to pass to the outer track, thus producing a sort of purl effect on the braid. The braid

at Fig. 97 requires the machine to be provided with a device to regulate the motion of the take-up rollers in such a way that it can be entirely stopped or operated at two speeds at pre-determined intervals regulated by the pattern mechanism. The device generally employed for this purpose was patented by the writer under date of November 12, 1907, Serial No. 871,004. It is illustrated at Figs. 98 and 99. The usual method of driving the take-off mechanism comprises a

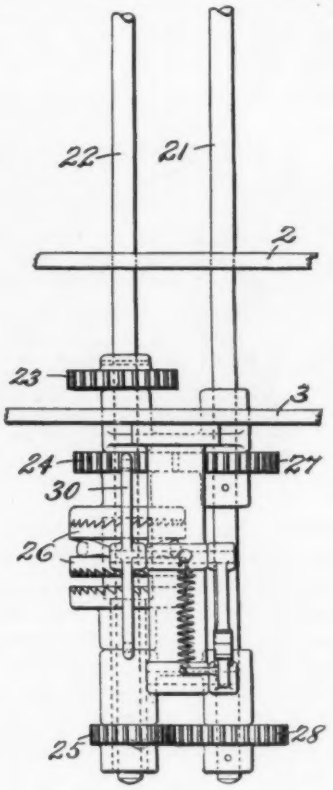


FIG. 99.

series of three rolls with suitable drive gears. These drive gears are in turn driven by a worm gear in mesh with a worm on the vertical shaft which is directly driven from the train of carrier gears. This vertical drive shaft is shown at 21, Fig. 99. The object of this improvement is to provide an intermediate shaft, 22, which, instead of being driven directly by the train of carrier gears at a fixed speed as usual, is driven indirectly

at different speeds as desired, so as to vary the speed of the take-off, the object being to vary correspondingly the tension on the fabric. The shaft, 22, is provided with a fixed gear wheel, 23, in mesh with the carrier gears and with loose gears, 24 and 25, of different diameters, either one of which may be caused to rotate with the shaft by proper movement of an intermediate clutch, 26, so as to rotate the take-off drive shaft, 21, at a correspondingly different speed through the smaller gear, 27, or the larger gear, 28, as the case may be. The clutch, 26, is moved, as shown, by a lever, 30, pivoted at 31, and arranged to be swung in opposite directions by tension rods, 32 and 33, with a spring latch, 34, holding it in either position.

The tension rods, 32 and 33, are connected to the jacquards of bi-circle braiders in the usual manner, and one of the spaces of the card prism is reserved to govern the speed. It is obvious that by means of this device it is easily possible to stop the movement of the take-off rollers entirely by removing one of the gears, for instance, 25 or 28. It is also obvious that the relative tightness of the fabric at different portions may be varied at will by a suitable selection of the change gears, 24 and 27, also 25 and 28.

(To be continued.)

The cotton crop of all the world for the year 1905-6 was about 17,782,440 bales divided as follows: United States, 13,420,440; East Indies, 2,960,000; Egypt, 1,187,000; Brazil, 215,000, with other smaller lots. The consumption was about 15,516,255 bales.

A KNITTED FABRIC.

An improved construction for fleeced knit goods has recently been patented by Bernard T. Steber, of Utica, N. Y., who describes it as follows: The improvement relates to that class of ribbed knitted fabrics, which have wales on one side and meshes on the opposite side, and with which is combined a yarn having projecting loops which can be submitted to a brushing or gigging action, so as to produce a fleecy surface upon one side of the fabric. The base fabric is formed of an alternating series of longitudinal wales, knit each from a different yarn, or from the same yarn at different times if so desired. The stitches forming the wales are all drawn toward the outside of the fabric. The loops forming each wale each include a portion of the other yarn connecting the two neighboring loops at the back of the fabric. The connecting portions of the loops form four-sided meshes on the back of the fabric, which thus exhibits on one face parallel longitudinal wales alternately of different yarns and on the other side lozenge shaped meshes formed by the connecting legs of the loops.

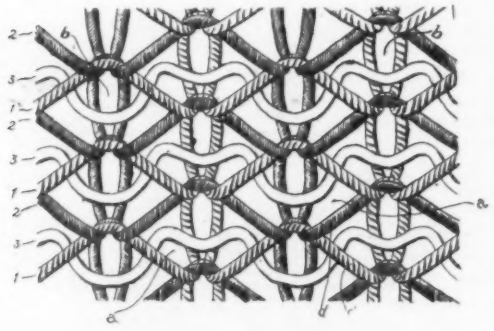


FIG. 1.

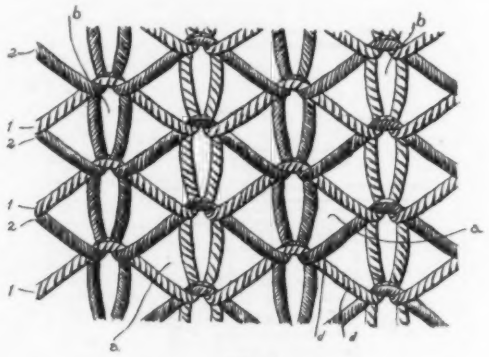


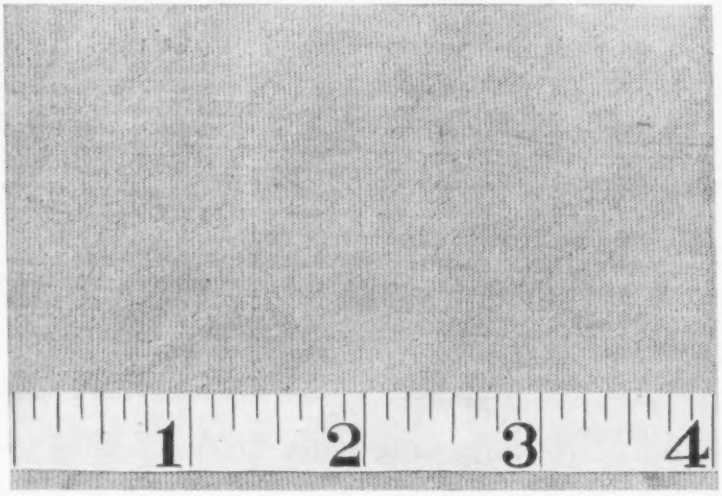
FIG. 2.

The object is to produce a fabric having superior wearing qualities, a considerable amount of elasticity, and a ribbed face side, resembling very nearly the "Strutt" rib in conjunction with a fleece side. This object is attained by knitting a fabric from a number of threads, the fabric being of double thickness, each thread or series of threads forming independent wales alternately arranged, the connecting threads of each set

of wales being interknitted with the intervening wales, the wales forming the ribs of one side of the cloth, and the connecting threads forming meshes on the opposite side, the fleecing thread being laid between the wales and meshes.

Fig. 1 represents a complete piece of the fabric; Fig. 2, a piece of fabric having the fleecing thread withdrawn.

1 and 2 represent successive courses of stitches; 3—3, the floating threads forming the fleecing loops; a, a are the meshes; and b, b, the wales.



The fleecing thread, 3, is inlaid between the wale threads, b, and the mesh threads, d. It is drawn in loops or piles through the meshes, a, a, and that it can be drawn in any desired lengths. It can be easily brushed or napped to form a fleece, without weakening the knitted portion of the fabric. It is possible to draw a fleecing loop through every mesh comprising the inner face of the fabric, if desired.

In the first seven months of 1907 the United States bought in foreign markets laces and embroideries to the value of 24 millions of dollars. Switzerland supplied 8 millions, France 7 millions, Great Britain 4 millions and Germany 3 millions.

PROGRESS IN KNITTING.

The oft repeated statement, "Improvement is the order of the age," has been verified in almost every branch of American industry, but in flat knitting on the domestic loop wheel machines there has been little change for some time. It is true that the design and construction of the machine itself was improved, but the method of forming the stitch remained unimproved for a considerable number of years. This condition of affairs has recently been changed with a considerable degree of success as indicated by the illustration herewith. This fabric is made on a loop wheel knitting machine, but with the objectionable features so modified or eliminated that with undiminished production the quality of the work is much improved, the needle breakage is reduced, and the range of yarn is considerably increased both as to weight and character. For instance: much heavier yarn may be knit with as good or better success as formerly and yarns which owing to the hardness of twist or character of the fibers would formerly make uneven or imperfect work may be knit with a high degree of uniformity.

The improvements, we are informed, do

not consist of merely one or two changes but of many, attention being given to every detail of the formation of the stitch. The machine on which this fabric was knit is built by the Tompkins Bros. Company, Troy, N. Y.

FULL FASHIONED HOSIERY MACHINES.

Philadelphia, Pa., Dec. 23, 1907.

Editor Textile World Record:

Referring to article in your December number, starting at page 137, beg to say that there are a number of discrepancies in same, which can easily be detected by any practical hosiery man, but in the interest of readers who may not be familiar with the manufacture of hosiery, I wish to make the following statement:

Comparison has been made between two mills and figures given to show difference in cost of production, saving in certain branches, etc. Your correspondent has neglected to mention the most important feature in connection with this article, viz: that for the same grade stocking made on Cotton's patent machines with strictly full-fashioned heel, a much better price can be obtained, consequently this upsets the whole argument.

To bear out this statement I herewith submit copy of letter received from one of the largest selling concerns in this country.

Respectfully yours,

OTTO WALTHER.

Sizing Yarn for Knitting.

Editor Textile World Record:

Our Payne winders have been fitted with a galvanized iron trough, similar to a roof trough, extending the entire length of the winder, in which revolves very slowly a tin roll 2 1/2 inches in diameter. The yarn is drawn over this roll which turns in an opposite direction from that in which the yarn is running. This trough is filled two-thirds full with a sizing made as follows:

8 lbs. lard,
8 lbs. white soap,
8 qts. neat's foot oil,
Water to make 1 barrelful.

This should be boiled well and to get good results should be warmed up each day. This is the only sizing I ever found to work well on mercerized yarn.

The tin roll is driven by a belt from the winder shaft to a jack shaft fastened in the frame work of the end of the winder and then to a groove pulley on the end of the roll. The amount of the size put into the yarn can be easily regulated by altering the speed of the roll. Willard.

KNITTING MILL NEWS.

New Mills.

*Georgia, Waycross. The facts regarding the proposed knitting mills for this place are as follows: The Roanoke Knitting Mills, Inc., of Roanoke, Va., of which E. F. O'Brien is secretary and treasurer, and which is contemplating starting a chain of knitting mills for the manufacture of medium grade hosiery, is considering the advisability of establishing two plants in this city. It is proposed that one plant should give employment to 100 white operatives and the other to 100 colored operatives. As yet nothing definite has been decided upon.

Kentucky, Paducah. The Wisdom Hosiery Co., recently incorporated to take over the plant of the Dixie Mills Co., plans to add 150 additional knitting machines. Robert B. Phillips is secretary.

*Maine, Waldoboro. Henry Suck and Andrew J. Kelly (Boston), president and treasurer of the Suffolk Hosiery Mills, have bought a mill building at this place and are preparing to install 25 spring needle knitting machines, 21 ribbers, and 10 loopers, also dyeing and finishing machinery, as the initial equipment. Manufacturing is expected to start about February 1 and the capacity will be about 220 dozen of men's, women's and children's hosiery per day. The Suffolk Hosiery Mills were previously reported incorporated with a capital of $30,000. The capital stock has been increased to $100,000. The product will be sold direct at the Boston office, 179 Summer St.

*Massachusetts, Ipswich. The new hosiery factory which we have reported from time to time, will be known as the Brown Stocking Co. The company has been incorporated with capital stock of $500,000. Machinery is being installed and part of the equipment will be ready for starting up by January 1. Harry B. Brown, formerly agent of the Ipswich Mills, will be general manager. Caleb A. Norwood, Frank L. Burke, D. Sidney Perley, Daniel Safford, A. Story Brown and Harry B. Brown of this place and Thomas P. Thomas of Newburyport, are the directors.

Massachusetts, Swampscott. F. H. Roope will start a knitting factory for the manufacture of ladies' and gents' hosiery, selling the product direct to the trade. It is understood that no machinery has been purchased.

*Michigan, Williamston. Shawls, scarfs, skirts

and similar goods will be manufactured in the small knitting plant being started by A. J. Edwards. A new building is being erected and 4 knitting machines and 1 sewing machine will be instaled in time to start manufacturing January 1. Arrangements are being made for additions to the initial equipment at an early date. The product will be sold direct.

*New York, Amsterdam. The new plant to be started in the Liddle Knitting Mill, formerly operated as a branch of the Van Brocklin & Stover Company, will be known as the Tryon Knitting Mills. A charter has been secured with a capital stock of $20,000. John K. Stewart has been elected president, and Jas. S. Stewart, treasurer. The manufacture of men's and boys' fleeces and balbriggans will be commenced at once, giving employment to 150 hands. The production will be sold through John K. Stewart & Sons, who operate the Chuctanunda Hosiery Mill, Globe Mill and Green Mill of this place.

New York, Brooklyn. The Federal Knitting Co., a new concern, is about to start up a plant for the manufacture of unshrinkable ribbed underwear. The mill is located at Wythe Ave. and Rutledge St. and contains 20 knitting and 100 sewing machines. Goods will be bleached and treated with a new process, which it is claimed will prevent shrinkage. Theo S. Baron is president and manager.

New York, N. Y. Maria Pettine has started a small plant of 2 machines for the manufacture of sweaters at 206 Lafayette St.

New York, N. Y. The Bell Knitting Company, 144 Greene St., is the name of a new concern which will manufacture fancy knit goods of all kinds. The product will be sold direct.

New York, New York. The Oxford Knitting Mills, a new concern, is busy on all kinds of fancy knit goods, which are manufactured on 6 knitting and 2 sewing machines at 8 East 109th St. M. Brooks is proprietor, and the product is sold direct.

New York, New York. Sweaters and fancy knit goods are manufactured by H. R. Raps, who recently put in 3 knitting machines at 328 E. 6th St.

New York, New York. The Direct Supply Company, a new concern with a capital of $150,000, is manufacturing high grade underwear for men, women and children at 2265 Third Ave. Separate garments and union suits are made. The company sells direct and reports good business.

New York, New York. The Yale Knitting Mills, Hirschman Bros. Co., proprietors, are about to remove from their present quarters at 499 Broadway to a location which will give space for the installation of machinery for the manufacture of sweaters. Heretofore the manufacturing for this company has been done by commission mills.

New York, Rexleigh. The Marble Knitting Mills, which were started some years ago by Geo. E. Brockway and later abandoned, have been bought by a Mr. Smith who will start the plant on knit goods as soon as necessary machinery can be secured. A Mr. Temple of Fort Plain has been engaged to assist in getting the plant ready and will be superintendent.

*New York, Utica. The Illma Underwear Company, previously reported incorporated with a capital of $18,000, and as leasing space for manufacturing, has almost completed the installation of machinery and will begin manufacturing January 1. 12 knitting machines and 20 sewing machines are the initial equipment and will be operated on men's fine ribbed shirts and drawers and union suits. Electric power will be used. C. H. Garthside is president, C. A. Jones, treasurer, and Fred C. Lewis, superintendent and buyer. The product will be sold to the retail trade direct.

*North Carolina, Drexel. D. B. Mull, reported as interested in starting a new hosiery mill, advises that he is planning to build a mill early in the spring. It is rumored that a hosiery manufacturer from Massachusetts is considering taking over the plant of the Drexel Hosiery Co.

Ohio, Cleveland. August Blepp, 1186 E. 71st St., N. E., has started up a knitting plant with 4 knitting machines, on which he will manufacture sweaters, cardigans and similar goods. The product will be sold direct.

Ohio, Columbus. The Capital Knitting Company has been organized for the manufacture of hosiery and expects to have plant in operation about January 1. John W. Shaw and Henry E. Hare are interested in the project. Messrs. Shaw and Hare were formerly of Dresden and Zanesville and have had a long experience in the manufacture of hosiery. They are fitting up a plant at 247 North Front St.

Ohio, Tippecanoe City. The Tippecanoe City Knitting Co. is nearly ready to start operations, giving employment to about 30 hands. Complete machinery equipment has been received and is being installed as rapidly as possible.

*Pennsylvania, Dauberville. Titus Seidel, of Reading, advises us that he is having his mill in this city repaired preparatory to installing 30 automatic knitting machines, boiler, engine and dynamo early in the spring. The main office will be 810 Windsor St., Reading, but after the plant is started, all buying and selling will be done at Dauberville. Mr. Seidel is proprietor of the Colonial Hosiery Mill, Reading.

*Pennsylvania, Harrisburg. The new knitting mill which we reported would be started in Harrisburg or Hanover will be located in this place. It will be known as the Commonwealth Knitting Mill. Ten knitting machines will be installed at first to manufacture ladies' ribbed underwear. I. H. Scharadin of Hanover is proprietor and has engaged Arthur Townsend of Philadelphia as superintendent. The production will be sold through E. M. Townsend & Company, 345 Broadway, New York City.

*Pennsylvania, Lititz. The organization of the Fulton Hosiery Company, which we reported as about to start up a plant at this place, has not been completed. W. H. Muth, John Depew and others are interested. It is understood that quarters have been leased and preparations are going forward for starting up.

Pennsylvania, Reading. Herbert Terrey, formerly connected with the Terrey Fashioned Hosiery Company of this city, is about ready to start manufacturing in his new plant. Fine gauge seamless goods, 220 needles, will be manufactured. Knitting machinery is being delivered now to the plant at 1028 Locust St., and it is expected that operations will start early in January.

*South Carolina, Lexington. The new knit goods company, which we reported last week as being organized by L. W. Redd, will probably have a capital stock of $50,000. It is understood that 40 knitting machines will comprise the initial equipment.

*South Carolina, North Augusta. J. L. Foreman, whom we reported in September as about to establish a hosiery mill, has selected a site and completed plans for his mill. It is understood that machinery has not been contracted for.

*Tennessee, Madisonville. Thos. L. Upton, formerly general manager and treasurer of the Dixie Mills Company, which have been reorganized as the Wisdom Hosiery Mills, has organized a company in this place to manufacture hosiery. The new concern is the Madisonville Knitting Mills Company and has an authorized stock of $25,000, with $15,000 paid in. The officers are R. C. Kefauver, president; T. E. H. Closkey, vice president, and J. W. Cobb, secretary. Mr. Upton will be treasurer and general manager. The mill will be started about the middle of February and will have a daily capacity of 250 dozens of 25-cent ladies' hosiery.

Enlargements and Improvements.

Canada, Quebec, Coaticook. The Penman Mfg. Co., Ltd., has purchased an old mill building and will install machinery which will increase its output.

*Connecticut, Bristol. The new power plant for the Bristol Mfg. Company has been completed and is in operation. An auxiliary water power plant is now under construction and will be coupled with the new power plant upon its completion. The company manufactures knit underwear and reports business very active. F. G. Hayward is pres.; A. D. Hawley, treas., and Russell Lasher, supt.

Connecticut, Poquonock. A new concrete floor is being laid in the dye house of the Dubham Hosiery Company. This company has orders on hand which will keep the plant busy well into the next year.

*Delaware, Wilmington. The building reported to be erected for the Glen Hosiery Company is to provide a permanent home for this industry. At present manufacturing is conducted in rented quarters. Plans have been completed for the building which call for a 2-story brick structure, 50 by 135 feet, to be erected at a cost of $12,000. The building will be built March 1, 1908. The present equipment of the company consists of 28 knitting machines and 6 sewing machines. To this will be added 100 knitting machines upon the completion of the new building. Jas. E. Carroll is pres.; Chas. B. Prettyman, treas.; and C. R. Prettyman, supt.

*Maine, Brunswick. The new mill of the Brunswick Knitting Mills is fully completed and all the machinery has been moved from the old plant and is in operation. The old building will be used as a dye house and for storage purposes.

*Massachusetts, Boston. The Somerset Knitting Company, which we reported last week as moving to larger quarters and about to increase equipment, has been incorporated with a capital of $6,000. J. E. Bailly is president and buyer; Sol L. Cohen is treasurer and Samuel Carver, clerk. Sweaters and athletic goods are manufactured.

*Massachusetts, Waltham. The new building being erected for the American Knitting Co. is nearly completed. As previously reported, it is a 3-story structure 70 by 40 feet and is to be used by the American Knitting Co. to enlarge their plant. Alfred Tomlin is president.

*New York, Brooklyn. Forty new knitting machines and 10 new winding machines are being installed in the addition erected for the Standard Knitting Mills Company. This company has a capital of $50,000. Alfred N. Gentzel is pres., Ernest C. Schoen, treas., and Wm. Marlow, supt. Women's and children's ribbed cotton underwear is manufactured, bleached and finished. The product is sold through Bateson & Dowd, N. Y.

New York, Brooklyn. A. Fain is removing his plant from 729 Metropolitan Ave. to 902 Park Ave., where he has secured larger quarters. It is understood that additional machinery will be added. 15 latch needle machines and 7 sewing machines are run on sweaters.

New York, Brooklyn. E. C. Seigerman, formerly superintendent of the Co-operative Knitting Works, has purchased the plant from Chas. Gunberg. Four new machines are to be added shortly. Men's and boys' sweaters and ladies' golf jackets and fancy knit goods are manufactured on 13 knitting and 7 sewing machines. Wool and worsted yarns are bought.

*New York, Clinton. As previously reported, the Lewis Knitting Company, operating plants at Sauquoit and Earlville, is going to operate the Clinton Knitting Company of this place. The plant is shut down at the present time for repairs and to install additional machinery. Henry W. Roberts continues as president, Edward B. Stanley as superintendent, and Ladd J. Lewis, head of the Lewis Knitting Company, will be buyer.

New York, Fonda. The Fonda Glove Lining Co. is making extensive repairs and adding several new knitting machines. This company has capital stock of $60,000 and operates 5 sets of wool cards and 23 spring needle knitting machines on astrachans, eiderdowns and fancy knit goods. L. N. Littauer is president and Albin Benedix is manager and buyer.

New York, New York. Treinis Bros., now located at 129 Crosby St., manufacturers of athletic goods on 10 knitting and 40 sewing machines, are arranging to remove their plant to 126-142 13th St., Brooklyn, and install a number of new knitting machines.

New York, New York. The Levy-Steiffel Company reports that their Columbia Knitting Mills, located at Glendale, L. I., are busy on sweaters and cardigan jackets and have added a number of new machines to keep up with orders. The company has a capital of $51,000. Bernard Levy is pres.; Ernest A. Grunsfeld, treas.; and Morris Lisk, supt. The production of the plant is sold direct from the main office at 459 Broadway and branch offices in Boston and Chicago.

Rhode Island, Pawtucket. The addition being built to the Lebanon Mill Co., which we reported as contemplated in March, is practically completed. It is a brick structure, 5 stories high and will almost double the capacity of the factory when the machinery is installed. Rubber linings, men's flat underwear, astrachans and similar goods are manufactured. S. Willard Thayer is pres., supt. and buyer.

Rhode Island, Thornton. The British Hosiery Co. contemplates disposing of its spinning machinery and utilizing the space by adding additional knitting machinery. Full fashioned wool, cotton and silk hosiery is manufactured on 78 spring needle and 20 latch needle knitting machines. The company is capitalized at $200,000. Fritz Achelis is president and Geo. E. Boyden, treasurer.

*South Carolina, Spartanburg. As previously reported, 30 new knitting machines have been added to the Crescent Mfg. Co. and the whole plant has been changed over to electric motive power. The basement to the main building is being rearranged to give additional floor space, and it is probable that a number of spindles will be added.

Virginia, Bristow. The National Hosiery Company, which we reported in November as starting a plant of 4 machines on hosiery, expects to add additional machinery about March 1.

Virginia, Radford. The Radford Knitting Mills has completed the installation of the initial equipment of machinery and contemplates adding 50 more knitting machines.

*Wisconsin, Manitowoc. Construction work will be commenced on the proposed addition to the Wisconsin Knitting Mills in the spring, and 15 knitting machines and 6 sewing machines will be installed upon its completion. E. H. Ludwig is president, treasurer and buyer. Men's, ladies' and boys' sweaters, cardigan jackets, etc., are manufactured at present on 22 knitting machines and 12 sewing machines.

Mills Starting Up.

New Hampshire, Manchester. The Elliott Mfg. Co. has resumed full operations in every department after a dullness lasting through the last two months.

Vermont, Bennington. The Cooper Mfg. Company, Inc., which shut down in November has resumed operations in all departments. The plant of H. E. Bradford & Company will start up next week.

Mills Shutting Down.

New Jersey, Vineland. The branch plant of the Ellis Hosiery Co., of Philadelphia, in this city, has been closed owing to a disagreement among the officials. The plant for formerly known as the Levy Hosiery Mills and was purchased in March by the Ellis Co. It is stated that the plant will remain closed until the court decides the differences.

New York, New York. The Tiger Fleece Knitting Mills, 59 Walker St., incorporated early this year with capital of $10,000, for the manufacture of men's and children's fleece-lined cotton underwear, have shut down their plant and disposed of machinery. Four knitting machines and 16 sewing machines were operated. A. L. Konobrinetz was pres.; Israel Baker, treas.; and Jos. Salte, supt.

North Carolina, Drexel. Operations have been suspended indefinitely in the Drexel Hosiery Co.'s plant.

Pennsylvania, Philadelphia. The Quaker City Knitting Co., which recently removed from Woodbine, N. J., to 10th and Diamond Sts., this city, where they manufactured woolen and worsted sweaters on 40 knitters and 50 sewing machines, have shut down the plant and are offering it for sale. The mill is considered one of the best equipped for the manufacture of this line of goods in this vicinity.

Personals.

B. F. Nuttall has accepted the position as superintendent of the cotton department of the Standard Knitting Mills, Knoxville, Tenn. He was formerly boss carder for five years with the Indian Head Mills, Cordova, Ala.

J. F. Tomblin has accepted a position as superintendent of the Knoxville Knitting Mills, Knoxville, Tenn.

Alden Miner has severed his connection with the Norwich Knitting Co., Norwich, N. Y., as overseer of knitting.

Thos. Temple of the Bailey Knitting Mills, Fort Plain, N. Y., has accepted a position as superintendent of the Marble Mills at Salem, Washington Co., N. Y.

Jackson Mullens has accepted the position as assistant superintendent at the Ipswich Mills, Ipswich, Mass. He has been connected with the mill for several years as bookkeeper and is thoroughly versed in the manufacturing of hosiery.

John Lambert has accepted a position as boss carder for the Hope Knitting Mills, Cohoes, N. Y., succeeding David Keefe.

Jackson Mullins, formerly superintendent of the lower mills of the Ipswich Company, Ipswich, Mass., has been chosen to act as assistant superintendent for the Ipswich Mills.

Percy A. Simmons has accepted the position as overseer of knitting at the Watson Mfg. Company, Paris, Ont., Canada, branch mill at Brantford, Ont., Canada. He was formerly employed at the Waiontha Knitting Company, Richfield Springs, N. Y.

New Machinery and Processes.

This department is designed to present from month to month a brief mention of new machinery, devices and processes being brought out in this country and abroad, that are of interest to textile manufacturers. It is not a list of patents, but of improvements coming on the market. The idea being to present to our readers a systematic monthly record of new machinery etc., of interest to textile mill men.
We invite machine builders and others to send us such information for this department.

A Comber for Worsted. John Hetherington & Sons, Ltd., Manchester, England, are about to place on the market the Nasmith comber adapted for combing worsted. The American agent, Stephen C. Lowe, 186 Devonshire St., Boston, Mass., states that the same advantages which the Nasmith cotton comber possesses will be obtained in the Nasmith wool comber.

Positive Drives for Slasher Cylinders. The Cohoes Iron Foundry & Machine Co., Cohoes, N. Y., have perfected a positive gear drive that will be greatly appreciated by manufacturers, who have experienced many difficulties in connection with the ordinary method of driving slashers.

New Product for Sizing and Finishing. The American Diamalt Co., Riverside, Cincinnati, Ohio, is introducing to the American market a new product for sizing and finishing called "Diastafor," which has met with much success in Europe and is being used largely by Continental mills.

A Ring Frame for Worsted Yarn. John Hetherington & Sons, Ltd., Manchester, England, whose American agent is Stephen C. Lowe, 186 Devonshire St., Boston, Mass., have recently developed a method of spinning waste yarn on the ring frame, which, it is stated, is giving excellent results as regards quality of the work and increased production.

Yarn Condition Oven. John Nesbitt, 42 Market St., Manchester, England. A yarn conditioning oven adapted for general mill use, enabling manufacturers to test the amount of moisture in textile materials.

Yarn Moistening Machine. Knowles & Co., Bradford, England. A new machine for moistening skein yarn. The machine is said to be of simple construction and easily operated by a boy, no skilled labor being required.

Wool Drying Machine. F. Bernhardt, Leisnig, Germany. A wool drying machine embodying a number of new features which is said to be capable of a largely increased production.

Ring Spinning Frame. J. Marx & Co., London, England, are bringing out a ring spinning frame designed to draw the strand by a method similar to that used in mule spinning. An extra pair of delivery rolls in front of the regular rolls are separated at intervals, allowing a certain amount of twist to run into the roving back of them, which is drawn finer by the varying speeds of the two sets of rolls.

Stop-Motion for Braiding Machine. August Dahlmann, Bermen, Germany. A new automatic stop-motion for braiding machine.

Pin Presser for Jute Cards. Fairbairn & Macpherson, Wellington Foundry, Leeds, England. A machine for pressing the pins in the lags on carding machines used for coarse fibre, such as jute, etc.

Dobby Motion. B. H. Moxon & Sons, Springfield Mills, Huddersfield, England. This firm has recently brought out an improved form of their dobby motion, which it is claimed renders the dobby more effective.

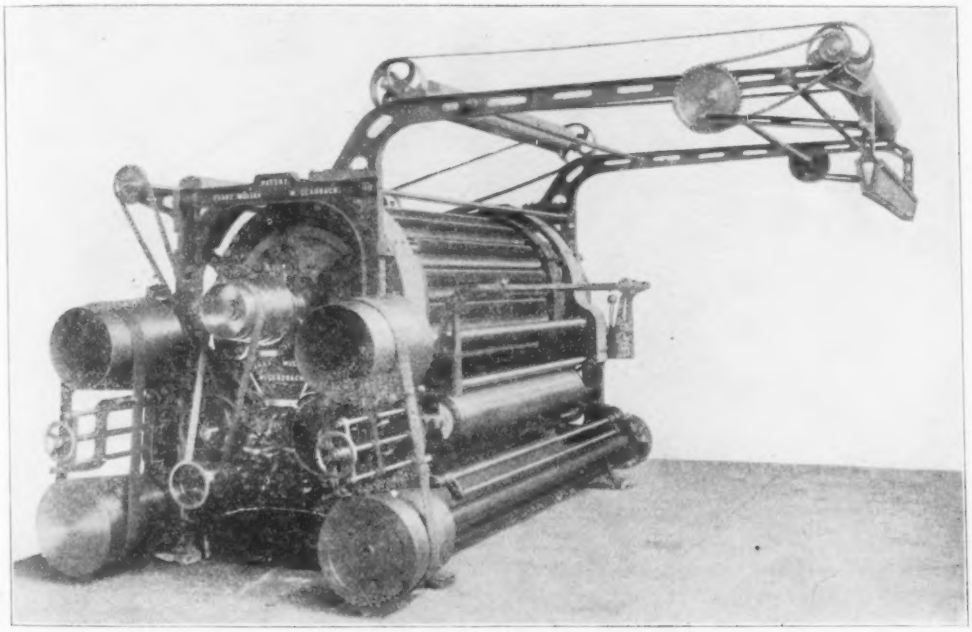
Builder for Spinning Frames. The Saechsische Maschinenfabrik, Chemnitz, Germany. A new builder for ring frames, the object being to obtain a cross wind on cops.

THE MUELLER 36-ROLLER NAPPING MACHINE.

The latest type of the 36-roller napping machine, built by Franz Mueller, Maschinenfabrik, M. Gladbach, Germany, is shown in the accompanying illustrations. The 36 raising rollers are solidly embedded on the large drum, which turns in solid bearings of large running surface. These rollers are of steel tubing provided with steel gudgeons. The small roller pulleys are surrounded by broad leather belts. The action of the machine is easily regulated by cone gearing. One-half of the rollers can be regulated independently of the other half. The machine has a recently patented leather belt arrangement for driving the cone beams. These cone wheels are constructed so as to ensure a uniform application of whatever energy is desired. All the raising rollers are in continuous contact with the driving belt, consequently a uniform start and drive is obtained.

The machine is provided with an exterior cleaning arrangement consisting of two well balanced cleaning cylinders, placed underneath the drum. The cylinders, driven by noiseless gears, clean the raising rollers continuously. The cloth to be napped is guided to and from the drum and over delivery rollers placed on the sides and underneath the drum. These rollers are driven by a method that enable the rotary speed of the delivery rollers to be changed at will by a hand lever. Changes in the energy of the machine can be made without stopping the machine.

The Mueller napper is provided with a seamless copper heating tube with automatic air-valve. The machine has a delivery and plaiter arrangement with 5-fold changeable cloth beam speed. The oilers, which have been patented recently, are said to effect a greater saving in oil.



THE MUELLER 36-ROLLER NAPPER.

The new oiler discharges automatically and is filled while the napper is in operation, causing no loss of time and no interruption in the work of the machine.

It is stated that the 36-roller napper has so much greater working capacity than the 24-roller machine that on some goods it has attained double the production. The power to run the machine, notwithstanding the

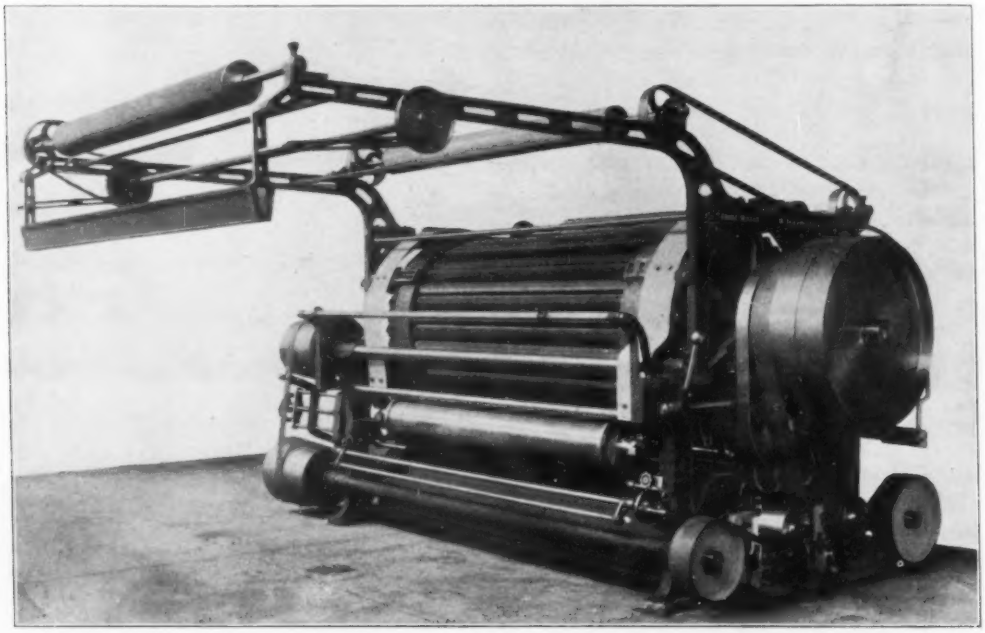
greater working capacity, is said to be but a trifle more than is required for the 24-roller napper.

Because of the wide range of work the Mueller machine has been named the "Universal" napper. The builders claim that any desired effect may be obtained without requiring special technical knowledge, the necessary changes being simple and easily made.

As a double acting machine half of the rollers are working as pile rollers, the card points going in the same direction as the cloth, the other half as counter pile rollers, the card points going in the direction opposite to the cloth. A roller of one series follows that of another series. The builders state that by letting the drum turn in the direction of the cloth the effect of "double action" raising is obtained. By letting the drum turn in the opposite direction of the cloth a somewhat shorter effect is obtained, which often makes the ordinary felting unnecessary.

As a so-called "half felting" machine the raising rollers remain in the same position, but the two pulleys on the lower shafts bearing the cones, are changed, this requiring but two or three minutes. This arrangement is used only for goods that are first raised well by double action, the effect being sufficient for certain qualities which do not require a special felting, the latter being different, however, from a real felting effect.

As a "felting" machine all the raising rollers are run in the same direction to obtain the best effect.



THE MUELLER 36-ROLLER NAPPER.

The Mueller napping machine is adapted for heavy as well as light goods. The builders state that it is made of the best material and does not require a special foundation.

Napping machines have been built by Franz Mueller since 1856 and among many high awards for these machines he has received first prize at the last international exposition in Milan, Italy.

Samples of goods napped on this machine and further information may be obtained by applying to the American agent, A. W. Buhlmann, Broadway and Broome Sts., New York.

AN ELECTRIC DRIVE.

An interesting example of the application of the electric drive to textile machinery and one that is worthy of notice is found in the factory of the Ayvad Mfg. Co., of Hoboken, N. J. The product of this company is the well known "water-wings," a device used by bathers and beginners in swimming to assist in floating the body. The group drive, in which a number of machines are driven by a motor from countershafts, is used throughout. The electrical installation, consisting of nine single phase induction motors, of a total capacity of 75 1/2 h. p., was furnished by the General Electric Company. The type of motor used is one recently developed by the above company for operation on single phase circuits and is known as the Form "KG".

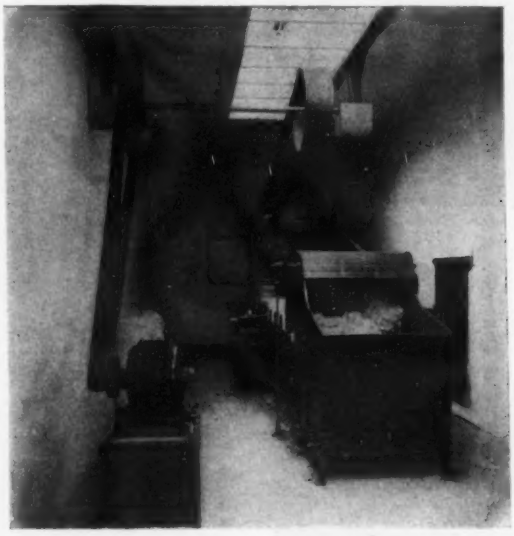


FIG. 1.

For the driving of textile machinery the inherent advantages of the three phase induction motor have long been appreciated, but while their use has been confined to the operation of mills supplied with polyphase current from either central power stations or isolated plants, the advent of the single phase induction motor has opened up a new field, the operation of mills in the suburbs or sections of the city supplied only with single phase current for lighting purposes.

The conditions influencing the final decision in favor of the single phase alternating current motors were that the factory was located in a part of the city supplied with single phase alternating current for lighting and that the motors used must operate without affecting the lights on the same circuit; also that all sparking of motors must be entirely eliminated. This last condition is one peculiar to textile mills, as the least spark might start a disastrous fire. A thorough investigation of the single phase motor, finally selected, satisfied the manufacturers that all conditions were met in the

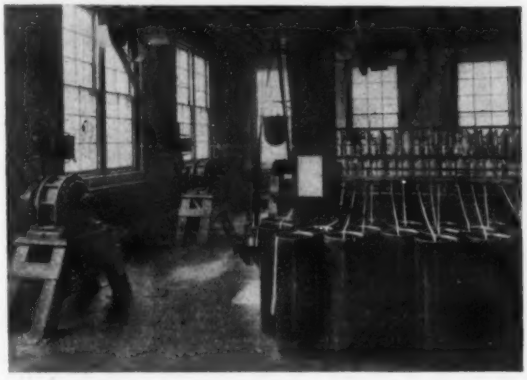


FIG. 2.

design of the motor, all commutators and brushes being eliminated.

Until this year the practice of the Ayvad Mfg. Co. was to buy the cloth used in the

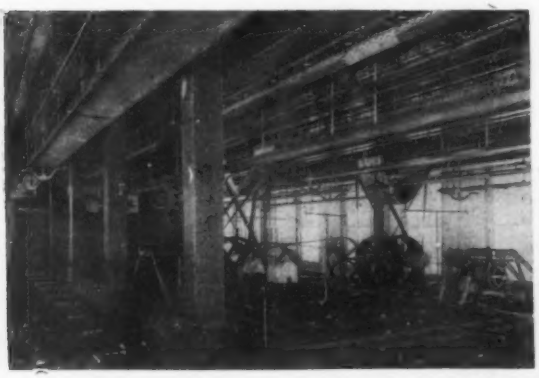


FIG. 3.

manufacture of their product, from textile mills, their factory converting the fabric into the finished product. Recently the mill has been equipped to manufacture the cloth required. The factory when in full operation will furnish employment for about sixty operatives and will require an average of about 5,000 pounds of cotton weekly.

FIG. 4.

The illustrations of this mill give an idea of the adaptability of the single phase motor to the driving of textile machinery.

Fig. 1 shows the method of counter-shaft connection to the motor in the picker room. The power required for running the picker is about 7 1/2 h. p. To provide sufficient light for working, a skylight was placed in the roof and the walls painted white.

The two 10 h. p. motors shown in Fig. 2 drive separate line shafting from which is driven the carding machines, drawing frames, roving machines and fly frames. In this room the lines from the power circuit enter through the necessary switches, protective devices, measuring instruments, etc.

Fig. 3 shows the spinning room and two of the three 10 h. p. motors driving twelve spinning frames with a total capacity of 3,000 spindles. The third motor, not shown in the view, drives a "spooler" and one warping

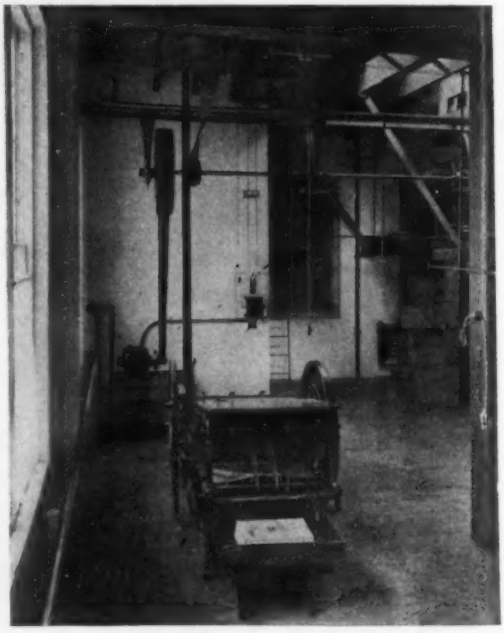


FIG. 5.

machine. All motors are installed on platforms suspended from the ceiling and drive the spinning frames through countershafting. Sheet iron arches over the passage ways protect employes from accidental contact with the belts. In the background of the picture may be seen the starting boxes, installed on slate panels with a backing of sheet asbestos.

Fig. 4 is a view of the 10 h. p. motor driving the looms. It was calculated that about 7 1/2 h. p. would be required to drive the

looms and a "slasher" not shown in the view. This leaves an ample margin in additional horse power should it be found necessary to install other machinery.

The 5 h. p. motor shown in Fig. 5 drives a pony cylinder printing press and line shafting from which are driven cutting presses and other special machines used in shaping and finishing the wings. The printing press is used for printing the design on the cloth and also for printing advertising pamphlets and circulars. On this floor a 3 h. p. motor drives a group of special sewing machines.

The entire plant is well equipped, roomy, and modern in every respect. It is expected that the adoption of the electric drive will result in a maximum output with minimum operating and maintenance expenses, as has been proved in similar cases, to say nothing of the additional advantages of cleanliness and flexibility that go far towards making popular this method of machine drive.

PREVENTING DECAY OF WOOD.

Among the general trade little is as yet known about the subject of wood-preservation. The importance of this question increases yearly owing to the rapidly diminishing supply of available timber. Secretary Hotchkiss, of the American Forest Congress, has compiled statistics showing the annual consumption of lumber in the United States to range between 46 and 50 billion feet. Wood-preservation is not among the new arts, and the primitive charring of wood showed results that induced inventive minds to endeavor improvement in this method. In 1838 Bethel patented a process in England which specified that "all timber to be treated shall be exposed in the air until fully seasoned." Today there is not one wood-preserving plant in Europe resorting to steaming to hasten seasoning. Burnett also patented his method in 1838, and the cheapness of his process induced many to favor it. Practical results very much favored the Bethelization as it became known, and Europe has now no more Burnettizing plants. This latter method has, however, been considerably improved by injecting a certain amount of insoluble matter into the wood already lightly treated by the old process. This resulted in the newer processes such as the Hasselmann, Rueping and Allardyce methods.

In 1869 Dr. Avenarius, a German chemist, made a preparation combining the essential qualities of the two processes which was then tested out on vineyard posts and proved of such great value that it was placed on the market in 1875 under the name of "Carbolineum," which was later changed to "Avenarius Carbolineum." Dr. Avenarius' idea of a reliable preservative for the vineyard regions of Germany soon spread, however, as its merits became known, and today his invention has an international reputation. Dr. Herzenstein, a Russian engineer, in reporting to the International Railway Congress, showed that 87 European railroads are using a wood-preservative, the methods employed being "Avenarius Carbolineum," creosoting and chloride of zinc treatment. This method consists of deeply penetrating the wood with a self-impregnating oil of heavy specific gravity, which on account of its chemical ingredients will prevent rot and decay.

In textile mills the treatment of wood work is to be recommended in the dye house, wash room and other departments where the constant presence of moisture from steam or running water causes wood to decay quickly, or where the wood is exposed to the destructive action of dyestuffs, acids, bleach, etc. The manufacturers claim that this material can be safely applied to dye tanks and vats and that it will not affect the dyestuffs or coloring materials. For flooring in the wet departments it is of value, and in recent years wood block flooring treated with this preservative is coming into extensive use in mills. The treatment of joists and foundation timbers, coal trestles, wood tanks, flumes, flume gates, sluices, scale timbers, platforms, bridges, sidewalks and fences is also of great value. The American representatives for this material are the Carbolineum Wood Preserving Co., 347 W. Broadway, New York, who have just issued a new booklet on the subject.

A PICK COUNTER.

The loom attachment shown in the accompanying illustration has for its object to indicate the picks per inch in the woven goods during weaving or after coming from the loom. This is accomplished by causing a slight harness float at regular intervals, say 400 picks, in the selvage. The weaver or overseer then applies the gauge to the cloth and can tell at a glance whether the space between the marks on the selvage is too long or too short; that is, whether there are less or more than the required number of picks per inch.

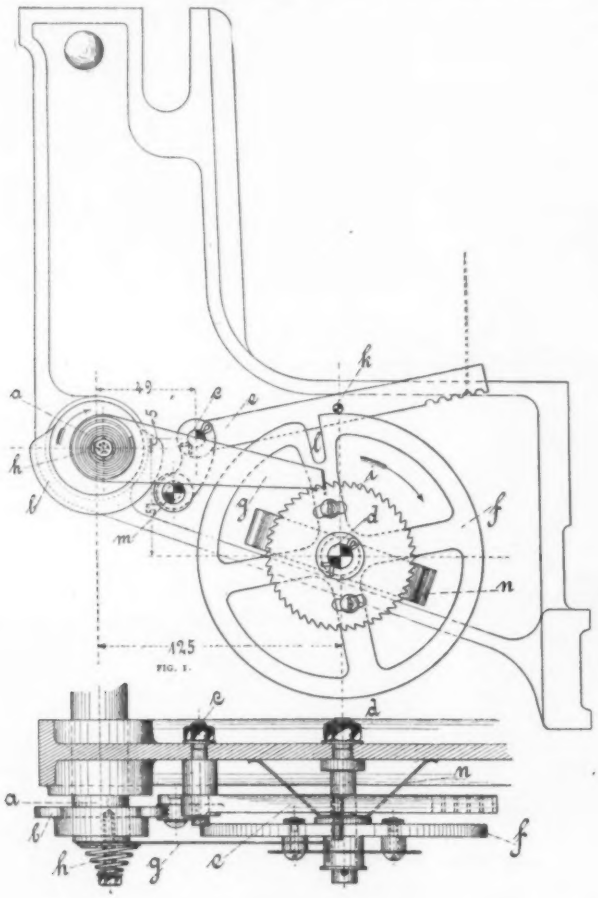


FIG. 1.

FIG. 2

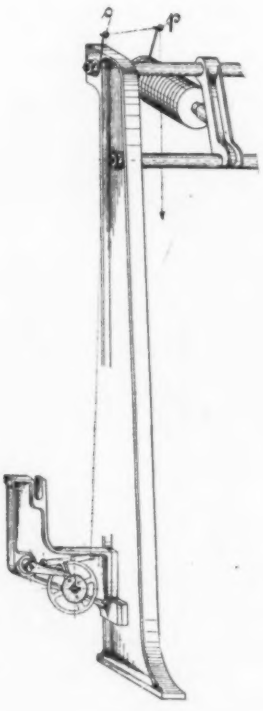


FIG. 3.

The cam, b, is fastened to the end of the loom shaft. On the same shaft is an arm, g, the point of which works the ratchet, i, connected with the controlling wheel, f. The shaft, a, revolves once for, say, 8 picks, and at each revolution the ratchet, i, is moved one tooth, carrying the wheel, f, a corresponding distance. If, as in this case, there are 50 teeth in the ratchet the wheel, f, would revolve once for every 400 picks. There is a slot, l, in the circumference of the wheel, f. The cam, b, operates the lever, e, in which is set the pin, k. The mechanism is so adjusted that when the slot, l, comes opposite the pin, k, the cam, b, is in such a position as to allow the lever, e, to drop down bringing the pin, k, into the slot, l, and holding the wheel, f, stationary. This occurs when the arm, g, is at the extreme outward point of its traverse. While it is being drawn back the lever, e, remains down for two or three picks

as desired, this being controlled by the shape of the cam, b.

As the lever, e, drops, it pulls down a cord, as shown in Figs. 1 and 3. This cord is connected with the harness cords operating the warp. A certain number of selvage threads are raised when the lever, e, falls; this causes a harness float which marks the selvage, but does not damage it in any way. The device can of course be adjusted for any number of picks. It is now in use in Switzerland on silk looms and is said to be giving satisfaction. The manufacturers are Oberholzer & Busch, Zurich, Switzerland.—Mittheilungen ueber Textil-Industrie.

A REINFORCED PICKER STICK.

A method of strengthening picker sticks, invented by Abel Rossignol, of Voiron, France, recently patented in this counrty, is illustrated at Figs. 1 and 2. Strips of leather are inserted and glued in position length-

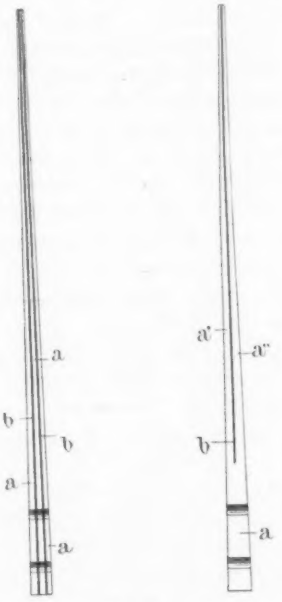


FIG. 1.

ways of the stick. Fig. 1 shows a stick with two strips of leather. The stick at Fig. 2 has only one strip for part of the length.

At Fig. 1, the leather strips, b, are placed between three strips of wood, a, to which they are fastened. At Fig. 2, a longitudinal incision or slot extends from the upper end of the staff through a considerable portion of the length, but not to the lower end, a strip of leather, b, being inserted between the two parts, a^1 and a^{11}, separated by the incision. The leather is coated with glue before it is inserted into the stick. After the insertion the parts, a^1 a^{11}, are brought into contact with the surfaces of the strip, by means of a press or other device. The picker-staff is then ready for use.

Large Profits in the French Lace Industry.

Consul J. B. Milner writes that the machine-made lace industry of Calais, which has been for more than three-quarters of a century a most prosperous French industry, in 1906 broke the record of all previous years.

Up to December 10 the export of this lace for 1906 from Calais to the United States alone amounted to $8,300,000, and the completed year will show a total export to America of between $9,000,000 and $10,000,000. The United States has always been regarded as the most liberal purchaser of the Calais product, which consists principally of Chantilly and Valenciennes laces, but for the past year these laces have been meeting with equal favor in all European countries and South American States. As a result the importance of the industry is greatly increased, and during 1906 not less than 100 new factories were put into operation, while many old makers increased the capacity of their factories.

This industry offers such an opportunity for arriving at fortune quickly that the industry monopolizes everything in the city to such an extent that Calais as a mercantile centre hardly supplies its citizens with the necessities of life, many citizens purchasing what they need in Paris or London. Young men who entered this industry five years ago have already gained their fortune. The lace workmen themselves earn from $20 to $40 a week, so that it can be truly said that few communities are more prosperous than this.

The population of this city is rapidly increasing, and new buildings are everywhere to be seen, resembling more a western city in the United States than a conservative old French town. Calais, as one of the four great lace centres of the world—the others being Nottingham, Plauen and St. Gall—can be said to be more than holding her own. Calais laces in some form or other are to be seen on nearly every woman in Europe as well as in the United States. Single invoices have been declared at this consulate for export to America amounting ofttimes to $40,000 and some to nearly $60,000.

The export of hosiery to the United States from Chemnitz in 1906 was valued at $6,978,080, an increase over the export for 1905 of $971,770, or more than 16 per cent.

Dyeing, Bleaching, Printing, Etc.

BLEACHING COTTON YARN IN LINK FORM.

BY DELCO.

This method of bleaching and bluing cotton yarn is not used in many places. It is considerably quicker than the hand system in the skein, but it sometimes gives more trouble until the operatives get accustomed to handling the skeins and the system gets into good working order, though it is well worth the trouble needed to make it a success.

The machinery required is practically the same as that used in piece goods bleacheries, except that the top rollers in the washing machines are not so heavy. These rollers are of rubber so that the weight of the roll will not injure the skeins at the fold where the link is formed. Care must also be taken that the goods are not run too tight in the washer box. This can be avoided by carefully adjusting the tension. Movable pot eyes enable the tension to be varied without cutting through the chain. It does not require much tension to break the yarn while it is passing through the washer. It is necessary to have a plentiful supply of water to save extra washings, thus avoiding handling in the machines.

For a large output it would be advisable to construct steeping pits. If the output is small one pit would do. The yarn is put into these pits to steep for 8 or 10 hours before putting it into the kier to boil. This helps to get a better color and also puts the material in better condition for the subsequent treatment.

The slowest part of the process is in the linking and unlinking of the skeins forming the chain. Two girls are required to make one chain and if intelligent they will soon become expert. The yarn is opened up in a second story and as fast as the skeins are linked they are dropped into the steeping pits below. A boy levels them down, and they are then covered with water which is heated to a simmer by coils underneath the perforated bottom of the pit. Steeping pits should have good drains so they can be flushed with water to clear the refuse and residue that comes from the yarn during the steeping process, otherwise the stench will be unbearable.

To increase our output we recently divided the pit by putting a wooden partition in the middle, raised up the sides in proportion, and made another hole in the floor of the room above. This gave us better facilities for handling the work than we expected. When we had enough for a run in one section we could fill the other without waiting for the bleacher to take the first run away. When enough yarn is linked for a run it is put in the steep until the next morning, care being taken that every part of the yarn is covered with water. Bring the liquor to a simmer, then shut off the steam, and let the yarn lie until morning. Have the fireman or watchman open the valve and draw off the water before the workmen arrive so they can start to draw the yarn out as soon as they begin work. In this manner the goods steeped one day will be ready for boiling the next. Before a holiday or a stoppage of any kind for a few days, draw off the water and cover with fresh water every day the yarn remains in the steep.

After the goods are drained pass them through the washer into the kier. If it is a caustic bleach, use from 1 to 1 1/2 per cent. of caustic, a little resin size, say from 1/2 to 1 per cent., according to the quality of the goods. See that the yarn is packed level and even in the kier with the water almost covering it, allowing room for the condensation of the steam in bringing the kier to a boil. Boil from 7 to 10 hours according to the quality of the yarn. After boiling, draw the yarn out of the kier, give a thorough washing through the machine and then a chemic bath, the strength of which will vary from 1/2° to 1 1/2° according to the quality of the material. This bath can be given in different ways, either in the machine after the goods

have been washed or in a cistern or pit, the liquor being sprayed on the chain as it is plaited down into the pit. The latter way is preferable for bleaching. The object is to give the yarn as little squeezing as possible in the machines in order to prevent it being cut in the fold where the link is made. The yarn remains in the chemic bath from 4 to 8 or 10 hours, until it is free from seeds and ticks. It is then washed clear of the chemic and treated in an acid bath which may be either sulphuric or hydrochloric, the latter being preferable, as it leaves the yarn in a much softer condition after it is washed off and ready for finishing. The goods are left to age for a few hours in this bath and are then washed.

If a lime bleach is used it is not necessary to steep the yarn. Less bleaching material is needed when the yarn is steeped. The yarn is passed through a solution of lime and water (using from 1 to 2 per cent. of lime according to the quality of the yarn) into the kier, which is filled with water as already stated. When boiled draw the yarn out of the kier, wash thoroughly in the machine and give an acid bath, varying from 1° to 2°. This bath can be given as in the caustic bleach. Let the yarn age for about six hours then wash back into the kier. When the goods are plaited down level in the kier mix the following solution:

1 to 2 per cent. of soda ash,
1/2 to 1 per cent. of resin size,
1 to 1 1/2 per cent. of soap.

Boil these ingredients together until dissolved, then run into the kier with the goods, fill up with water as before and boil for 6 to 10 hours according to quality of the goods. The condition of the goods should be noted when put into the kier. After they have boiled the required length of time, follow the same process as in the caustic bleach, being careful to watch the yarn in the chemic bath, which need not be so strong as in the caustic bleach.

For bluing the goods in the same operation a long trough with a small pair of squeezers at one end will be required. As the yarn is being washed up for the last time, it passes over a reel and is carried forward into the trough at the nearest end to the washer, this trough being about 4 yards long. The yarn is drawn through the bluing solution, through the squeezers and into the box or white pit which is ready to receive it when finished. Two boys will soon learn to unlink the goods, which are then extracted, dried and put up in bundles ready for shipment. A good solution for bluing at the machine is made of Ultramarine Blue cut with alcohol. Put the solution into the box at the squeezers until the desired shade is obtained. When the machine is working put a little in at frequent intervals to keep up the shade, it being better to put in a little often than a large quantity at once.

CHLORIDE OF LIME.

BY DR. LOUIS J. MATOS.

This product, known also as bleaching powder, is the most important source of available chlorine for the textile and paper trades, and forms one of the most technically important chemical products of Europe. The process of manufacturing bleaching powder may be described somewhat briefly, but there are a number of important details which can only be appreciated when the process is seen in operation. Bleaching powder is obtained by passing chlorine gas through and over large quantities of dampened (slacked) quick lime until a point is reached when the lime ceases to take up and retain any further quantity of gas. Chlorine gas was formerly generated as an incidental by-product of the Leblanc soda process, the chlorine being obtained by the action of sulphuric acid upon common salt, the reaction taking place in a furnace constructed as shown at Fig. 1.

A is a large iron pan in which the salt and acid are placed; B is the outlet for the liberated hydrochloric acid gas; C is a hearth where the second stage of the soda ash operation is completed; D is a fireplace furnishing heat to the hearth; E is a fireplace under the pan, and F is a flue to carry away the furnace gases.

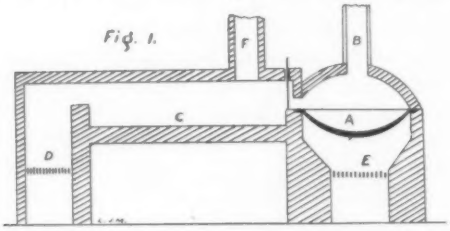
From the flue, B, the gases are led through large vessels containing water in which the hydrochloric acid gas is absorbed, and which then becomes the hydrochloric

acid or "muriatic acid" of commerce.

Without entering into elaborate details, it will suffice for the purpose of this article to describe but one process where hydrochloric acid is used, and in conjunction with a mineral known as "pyrolusite" or black oxide of manganese, and which causes a decomposition of the acid, liberating free chlorine.

The gas generator for this part of the process is shown at Fig 2, and consists of a

Fig. 1.



so-called "still" constructed of large slabs of sandstone suitably cemented together. On the false or perforated bottom the pyrolusite is placed and the hydrochloric acid led upon it through the intake pipe, B, while at the same time steam is forced through the pipe, C. The liberated chlorine gas makes its exit through the pipe, D, and into the absorbers containing the lime. In recent years considerable attention has been given to processes for generating chlorine by means of electricity, the raw material acted upon being a simple solution of common salt or other soluble cheap chloride. By whatever process the chlorine is obtained the preparation of the bleaching powder is essentially the same for all works. The lime selected for the purpose should be fresh burned and of the kind known to lime burners as "fat lime," and should be slacked so that when ready to be placed in the absorbers it will contain about 25 per cent. of water.

The absorbing chambers are usually constructed of brick, heavily protected with pitch on the inside, and are of such floor space as to deliver an output of one ton of finished bleach per 200 square feet per week. The slacked lime is sifted through screens, then spread to a depth of four inches or so on each floor or shelf; the chlorine is then led into the chamber at the top, and owing to its density, works its way to the bottom of the chamber, during which time the lime becomes saturated. As a rule several absorbing chambers are connected and are operated in succession so that fresh gas is always being supplied to the chamber containing lime which is most nearly saturated.

From time to time during the passage of chlorine tests are made by the chemist of the works for the purpose of determining when the absorption is complete, the process being over when the test shows that the sample contains about 36.5 per cent. of available chlorine.

Sometimes during the process of manufacturing, certain setbacks are encountered which are difficult to control, the result being that the bleaching powder, due to such setbacks, is weak and considerably below strength; in such cases the batch is sold for whatever it will bring.

ADULTERANTS.

Owing to the process as outlined above, commercial bleaching powder cannot very well be adulterated because there are hardly any substances that could be used to cheapen it, and also from the fact that it is an established custom of the trade to sell and buy bleaching powder upon its assay value as determined by chemical means.

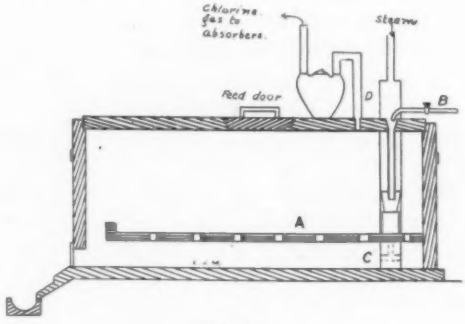


FIG. 2.

"Bleaching powder" as usually met with, is a fine white powder with a tendency to appear granular or lumpy, often slightly yellowish, and always having a strong odor of chlorine. The strongest possible bleaching powder contains 38.5 per cent. of available chlorine; as a rule this varies between 32 and 37 per cent., while it is not unusual to meet

with samples very much below 32 per cent., especially in warm weather.

ASSAY OF BLEACHING POWDER.

There is only one way to determine the value of a sample of bleaching powder, and that is by a correctly made determination of the chlorine contained in it, its value cannot be "guessed" nor can an opinion be formed by inspecting a sample and judging by its apparent dryness, color, or odor. To properly assay bleaching powder, there will be required the following apparatus:

1 4-inch porcelain mortar.
1 1,000 c.c. flask.
1 50 c.c. pipette.
1 50 c.c. burette and stand.
Several glass breakers.
1 3-inch funnel,

and it is understood that the operator has access to an accurate chemical balance.

The following solution will be required, and if a number of tests are to be made, several litres may be prepared.

Dissolve 4.95 grammes pure arsenious acid and 25 grammes recryst. sodium carbonate in 200 cubic centimetres of water, boil until all is dissolved, cool and dilute to 1,000 c.c. and transfer to a glass stoppered bottle for use. This is a one-tenth (1/10) normal solution; each 1 c.c. corresponds exactly to .003546 grammes available chlorine. There will also be required some iodo-starch paper which is more easily purchased from a druggist than to prepare it.

TO MAKE THE TEST.

Ten (10) grammes of the sample of bleaching powder to be tested are placed in the mortar and 50 c.c. of cold water added. Rub well with the pestle, let settle, and pour through the funnel into the litre flask. Treat the residue in the mortar in the same manner until all the powder has been washed into the flask, then add cold water up to the mark, and shake. This solution is turbid, which fact can be disregarded. With the pipette withdraw 50 c.c. of the solution, and place in a glass beaker, and from the burette (previously filled with the arsenious acid solution to the zero mark) gradually run into the beaker some of this solution until a blue spot no longer forms when a drop of the liquor from the beaker is applied to the iodo-starch paper. When this point is reached, read off the number of cubic centimetres of arsenious acid solution consumed, and multiply by .003546. The result will then be the amount of available chlorine contained in the 50 c.c. of bleaching powder solution, originally taken, which corresponds to 0.5 gramme of original bleaching powder, from which the percentage of available chlorine can be calculated.

Some confusion has occasionally arisen regarding the relative merits and strength of bleaching powders of English, German, and French origin. As a matter of fact no difference exists in the character and quality of the finished products from each of the above mentioned countries when the percentage of available chlorine is the same. The opinion regarding differences no doubt has originated from the fact that the French designate their bleaching powder by "degrees," each one of which corresponding to the number of litres of chlorine gas which could be given off by one kilogramme of bleaching powder, while the German and English designate theirs by the percentage of chlorine. According to the French system "110° Bleach" corresponds to the German "35° Bleach," or English "35 per cent. Bleach."

The following table gives the strength of solutions of bleaching powder, and will be found particularly useful to the bleacher and dyer. It should be noted that solutions, the approximate strengths of which are to be determined by hydrometers, should be made with fresh bleaching powder:

STRENGTH OF SOLUTIONS OF BLEACHING POWDER.

Deg. Tw.	Pounds of 35% Bleaching Powder per 10 U. S. Gallons.	Available Chlorine in Grammes per Litre.
0.0	0.0	0.00
.5	0.333	1.40
1.0	0.641	2.71
2.0	1.324	5.58
3.0	2.015	8.48
4.0	2.515	11.41
5.0	3.448	14.47

6.0	4.131	17.36
7.0	4.864	20.44
8.0	5.656	23.75
9.0	6.339	26.62
10.0	7.097	29.60
11.0	7.781	32.68
12.0	8.531	35.81
13.0	9.212	39.10
14.0	10.070	42.31
15.0	10.878	45.70
16.0	11.653	49.96
17.0	12.436	52.27
18.0	13.136	55.18
19.0	13.877	58.40
20.0	14.560	61.50
21.0	15.352	64.50
21.2	15.543	65.33
22.0	16.185	68.00
22.1	16.335	68.40
23.0	17.018	71.50
23.1	17.076	71.79

The following table gives the comparison of the so-called French and German degrees for bleaching powder.

Degrees French.	Degrees English and German.
63	20.02
65	20.65
70	22.24
75	23.83
80	25.42
85	27.01
90	28.60
95	30.19
100	31.80
105	33.36
110	34.95
115	36.54
120	38.13
125	39.72

In proportion to the total area, India has more land under cotton cultivation than the United States. In 1906-07 the United States, with a total of 1,900,824,320 acres, had 32,049,000 acres devoted to cotton-growing, while India's figures for the same period were respectively 1,127,619,565 and 22,344,000 acres, but the yield per acre in India is but little more than a third of that of the United States.

A CONTINUOUS BLEACHING PROCESS FOR RAW STOCK.

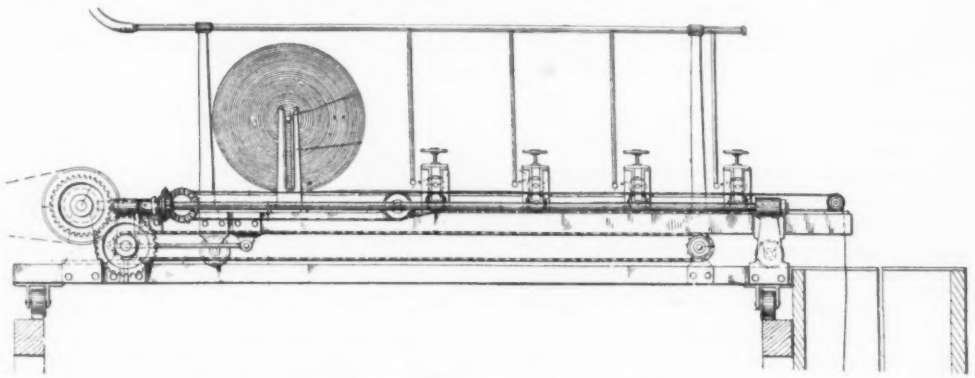
Increased production and more uniform work are the claims made by the inventor of this bleaching machine, recently patented in this country. The inventor states that it is adapted for bleaching raw stock, yarn and cloth. For raw stock the machine, a longitudinal section of which is shown at Fig. 1, is built with an endless apron, a tank below the apron, spray pipes above, and squeeze rolls.

On the carriage are supported a number of squeeze rolls, at a uniform distance from each other. There is above the aprons a main supply-pipe for the bleaching solution, one end of the pipe being connected by a rubber hose with a tank for supplying the solution, this hose being of sufficient length to permit the forward motion of the carriage with the supply-pipe over the tank. From the supply-pipe extend, in downward direction, vertical pipes of smaller size, which terminate in front of the squeeze rolls in horizontal spray-pipes, provided with minute openings at their under-sides so as to supply a continuous spray of the bleaching solution to the fibers carried by the aprons to the rolls.

The material to be bleached is supplied in a lap or sliver, wound around a feed-roll, the shaft of which is supported in the slotted standards on a carriage to the aprons, and fed forward successively through the squeeze rolls. The spray-pipes arranged near each pair of rolls deliver a uniform supply of the bleaching solution to the fibers, after which the squeezing action on the lap or sliver takes place, ensuring a uniform distribution of the bleaching solution throughout the fibers. When the lap or sliver of fibers arrives at the end of the apron, it is delivered in a sheet or sliver to the bottom of a tank and deposited there in successive layers owing to the reciprocating motion of the carriage until the tank is filled. The fibers are then permitted to stand in the tank for some time so as to be thoroughly acted upon by the bleaching solution. When the bleaching is completed, water is admitted through the bottom of the tank and forced gradually

in upward direction through the fibers to the upper part of the tank so as to remove the bleaching solution by the washing action of the water. The material is then carried from the tank by a conveyer to a centrifugal extractor, which removes the excess of moisture and is finally dried.

The bleaching and washing tank may be made of wood, cement or other suitable material. As soon as the tank is filled, the carriage is moved to an adjacent tank, where the action of feeding the fibers and impregnating them by filtering solution is continued, the layer or sliver of saturated fibers being delivered into the next tank in the same manner as before.



A CONTINUOUS BLRACHING MACHINE.

A number of tanks may be arranged together and the saturating machine moved from one tank to the other, so that a continuous bleaching action is kept up—one tank after the other being filled and the contents bleached and washed and then discharged for the drying operation.

If desired, round perforated baskets may be placed in the tanks so that the bleached and washed fibers in the same can be directly transferred to the extractor.

The first seven months of 1907 the United States imported 89 million pounds of raw cotton, of which 68 million pounds came from Egypt, 6 million from Great Britain and 2 million pounds from South America, the whole representing a value of over 17 millions of dollars.

Color Cards.

Alphanol Blue B R Extra; Cassella Color Co., New York.

Card containing two samples of piece goods showing shade obtained by the use of Alphanol Blue B R Extra.

Oxamine Dark Blue BG E; Kuttroff, Pickhardt & Co., New York.

A folder containing three samples of loose cotton showing shade obtained by the use of Oxamine Dark Blue BG E.

Oxamine Dark Brown G; Badische & Co., New York.

A folder containing samples of loose cotton, cotton yarn and piece goods showing two shades obtained by the use of Oxamine Dark Brown G.

Alizarine Rubinole R; Farbenfabriken of Elberfeld Co., New York.

Contains samples of yarn and piece goods showing shades obtained by the use of Alizarine Rubinole R ranging from 1/2 to 3 per cent. of color. One of the samples shows the effect obtained by printing.

Milling Yellow G A; Berlin Aniline Works, New York.

Two samples of worsted yarn and woolen goods showing the results obtained by dyeing with Milling Yellow G A. It is claimed that it has excellent fastness to light and washing.

Thiogene Gold Brown O G Conc.; H. A. Metz & Co., New York.

Two samples of cotton yarn and piece goods showing the excellent results obtained by using Thiogene Gold Brown O G Conc.

Immedial Olive G G; Cassella Color Co., New York.

Samples of cotton yarn, cotton piece goods and loose cotton dyed with Immedial Olive G G, which it is claimed has very good fastness for light and washing.

DYE RECIPES.

The following recipes appear in the Dyers' Supplement, which is issued each month by the TEXTILE WORLD RECORD. The Supplement contains the colored samples, dyed according to recipes given. The selection of samples is carefully made, and it is the aim to show shades which are of especial interest to the dyer, and which the requirements of the market demand. The Dyers' Supplement is a 16-page pamphlet, in convenient form for preservation. Subscription price for the Dyers' Supplement $1.00 per year.

Recipe No. 1.

Grey on Cotton Yarn.

Direct Fast Grey on 100 lbs. cotton yarn. Prepare the dye bath with

½ lb. Direct Fast Grey.
(E. M. Thayer & Co., 411 Atlantic Ave., Boston.)
15 lbs. Common Salt.

Enter at 180° F., and dye at a boil for one hour.

Direct Fast Grey possesses good fastness to light and washing, and dyes very level and works well with all other direct cotton colors.

On account of its level dyeing properties, it is particularly useful as a base for light grey shades.

Recipe No. 2.

Claret on Cotton Yarn.

Oxamine Claret B on 100 lbs. cotton yarn. Prepare the dye bath with

3 lbs. Oxamine Claret B.
(Badische Company, 128 Duane St., New York.)
20 lbs. Glauber's Salt.

Enter at 180° F., and dye at a boil for one hour.

Oxamine Claret B dyes evenly and is suitable for dyeing both straight cotton and union material. It possesses good fastness to alkalies, and its fastness to light and acids is equal to that of the average direct cotton colors.

Recipe No. 3.

Blue on Worsted Yarn.

Cashmere Blue T G Extra on 100 lbs. cotton yarn. Prepare the dye bath with

1½ lbs. Cashmere Blue T G Extra.
(Farbenfabriken of Elberfeld Co., 66 Lafayette St., New York.)
20 lbs. Glauber's Salt.
15 lbs. Sodium Bisulphate.

Enter material at 160° F., and dye at a boil for one hour.

Cashmere Blue T G Extra dyes easily level, and gives dark blues of very good fastness to light and alkalies. It does not stain white cotton threads, and will be found an excellent color for the dyeing of ladies' dress goods.

Recipe No. 4.

Black on Cotton and Wool Union Cloth.

Fast Union Black P B on 100 lbs. Union Cloth. Prepare the dye bath with

5 lbs. Fast Union Black P B.
(F. E. Atteaux & Co., 176 Purchase St., Boston.)
20 lbs. Glauber's Salt.

Boil the material in this bath for one hour. Then wash and work for 20 minutes in a cold diazotizing bath made up with

2½ lbs. Sodium Nitrite.
4 lbs. Hydrochloric Acid.

Rinse and treat for 20 minutes in a fresh cold bath made up with

¾ lb. Meta Toluylene Diamine,
½ lb. Soda Ash,

previously dissolved in hot water.

Union Black P B produces a black possessing excellent fastness to light, scouring and steaming. It dyes the cotton and wool to the same extent, and produces very even dyeings.

Recipe No. 5.

Red on Cotton Yarn.

Tetrazo Red B on 100 lbs. cotton yarn. Prepare the dye bath with

3 lbs. Tetrazo Red B.
(American Dyewood Co., 154 William St., New York.)
25 lbs. Common Salt.
½ lb. Soda Ash.

Enter at 180° F., and dye at a boil for one hour.

Tetrazo Red B is fairly fast to acid, and dyes cotton and wool the same shade.

Recipe No. 6.

Brown on Worsted Yarn.

Acid Brown 7419 on 100 lbs. worsted yarn. Prepare the dye bath with

2 lbs. Acid Brown 7419.
(W. F. Sykes & Co., 85 Water St., New York.)
4 lbs. Sulphuric Acid.
10 lbs. Glauber's Salt.

Enter at 160° F., raise slowly to the boil in one-half hour, and boil for one-half hour longer.

Acid Brown 7419 produces one of the popular shades of brown, dyes level, and penetrates thoroughly, and shows good resistance to light and washing.

Recipe No. 7.

Green on Cotton Yarn.

Pyrol Green B O on 100 lbs. cotton yarn. Prepare the dye bath with

6 lbs. Pyrol Green B O.
(C. Bischoff & Co., 451 Washington St., New York.)
12 lbs. Sodium Sulphid. Crystals.
50 lbs. Common Salt.
5 lbs Soda Ash.

Boil up the dye bath, cool slightly, enter yarn, and dye just below the boil for one hour.

Pyrol Green B O possesses the valuable properties of similar dyestuffs of this class.

Recipe No. 8.

Brown on Cotton Yarn.

Oxamine Brown 3 G on 100 lbs. cotton yarn. Prepare the dye bath with

3 lbs. Oxamine Brown 3 G.
(Badische Company, 128 Duane St., New York.)
20 lbs. Glauber's Salt.

Enter at 180° F., and dye at a boil for one hour.

Oxamine Brown 3 G possesses good fastness to light, alkalies, ironing, and is not only suitable for the dyeing of direct cotton, but also of union material.

Recipe No. 9.

Blue on Worsted Yarn.

Wool Fast Blue B L on 100 lbs. worsted yarn. Prepare the dye bath with

3 lbs. Wool Fast Blue B L.
(Farbenfabriken of Elberfeld Co., 66 Lafayette St., New York.)
10 lbs. Glauber's Salt.
3 lbs. Acetic Acid.

Enter material at 140° F., bring slowly to a boil, and after boiling one-half hour add

3 lbs. Sulphuric Acid

and boil one-half hour longer.

Wool Fast Blue B L possesses excellent fastness to light, as well as very good fastness to washing, alkalies, acids, carbonization, stoving, steaming, ironing. Its fastness to milling will suffice for moderate demands.

A peculiar feature of the color is that the shades are scarcely altered by chrome salts, either previously mordanted or after-chromed, but its fastness to milling is improved thereby. It will be found an excellent blue for the dyeing of ladies' dress goods.

Recipe No. 10.

Black on Worsted Yarn.

Chrome Fast Black P B on 100 lbs. worsted yarn. Prepare the dye bath with

10 lbs. Chrome Fast Black P B.
(Berlin Aniline Works, 213 Water St., New York.)
10 lbs. Glauber's Salt.
3 lbs. Sulphuric Acid.

Enter at 120° F., raise slowly to a boil, and boil for about one hour, or until the bath is nearly exhausted.

(Complete exhaustion is only possible with a large amount of acid, but an excess of acid, however, deteriorates the shade and must be avoided.)

Then add

4 lbs. Potassium Bichromate

and boil for three-quarters of an hour longer.

Chrome Fast Black P B possesses excellent fastness to milling, light, atmospheric influences, and also very good fastness to most of the other common color destroying agencies. Upon the whole it is an extremely fast wool black.

Recipe No. 11.

Violet on Cotton Yarn.

Direct Violet R on 100 lbs. cotton yarn. Prepare the dye bath with

2 lbs. Direct Violet R.
(W. F. Sykes & Co., 85 Water St., New York.)
3 lbs. Common Salt.

Enter material at 150° F., dye at a boil for one hour.

Direct Violet R gives excellent results both on straight cotton and upon union material. It works well with other direct cotton colors.

Recipe No. 12.

Blue on Cotton Yarn.

Diamineral Blue B on 100 lbs. cotton yarn. Prepare the dye bath with

4 lbs. Diamineral Blue B.
(Cassella Color Co., 182 Front St., New York.)
1 lb. Soda Ash.
20 lbs. Glauber's Salt.

Enter material at 180° F., and dye at a boil for one hour. Rinse the material and after-treat in a bath made up with

2 lbs. Copper Sulphate,
2 lbs. Potassium Bichromate,
1 lb. Acetic Acid,

at a boiling temperature from fifteen minutes to one-half hour.

Diamineral Blue B, when after-treated in this manner, possesses excellent fastness to light and acids, very good fastness to washing.

When applied in the above manner it will be found to be an excellent cotton blue.

It can be applied in copper vessels, and is therefore valuable for mechanical dyeing.

Recipe No. 13.

Scarlet on Cotton Yarn.

Tetrazo Chlorine Scarlet B on 100 lbs. cotton yarn. Prepare the dye bath with

3 lbs. Tetrazo Chlorine Scarlet B.
(American Dyewood Co., 154 William St., New York.)
30 lbs. Common Salt.
½ lb. Soda Ash.

Enter at 180° F., and dye at a boil for one hour.

Tetrazo Chlorine Scarlet B possesses good fastness to light, acids and washing. It is especially adapted for union dyeing, giving very bright shades. The wool is colored somewhat heavier than the cotton. This dyestuff is also of especial interest for the dyeing of artificial silk.

Recipe No. 14.

Brown on Cotton Yarn.

Zambesi Brown 4 R on 100 lbs. cotton yarn. Prepare the dye bath with

4 lbs. Zambesi Brown 4 R.
(Berlin Aniline Works, 213 Water St., New York.)
20 lbs. Glauber's Salt. Calcined.
1 lb. Soda Ash.

Enter material at 180° F., and dye at a boil for one hour. Rinse, and diazotize for one-half hour in a cold bath made up with

3 lbs. Sodium Nitrite.
8 lbs. Sulphuric Acid, 168° Tw.

Rinse, and work for one-half hour in a cold bath made up with

1¼ lbs. Toluylene Diamine,
1¼ lbs. Soda Ash,

previously dissolved in hot water. Then wash thoroughly.

Zambesi Brown 4 R when applied in the above manner produces an excellent shade of reddish brown possessing good fastness to washing, alkalies, and also fairly good fastness to light, boiling water and acid cross dyeing.

Recipe No. 15.

Green on Cotton Yarn.

Compound Shade on 100 lbs. cotton yarn. Prepare the dye bath with

5 lbs. Pyrol Green B O.
5 lbs. Pyrol Yellow G.
(C. Bischoff & Co., 451 Washington St., New York.)
20 lbs. Sodium Sulphid. Crystals.
50 lbs. Common Salt.
5 lbs. Soda Ash.

Boil up the dye bath, cool slightly, enter yarn, and dye just below the boil for one hour.

These colors possess the valuable properties of similar dyestuffs of this class.

Recipe No. 16.

Black on Cotton Yarn.

Diamine Fast Black X on 100 lbs. cotton yarn. Prepare the dye bath with

7 lbs. Diamine Fast Black X.
(Cassella Color Co., 182 Front St., New York.)
20 lbs. Common Salt.
1 lb. Soda Ash.

Enter at 180° F., and dye at a boil for one hour.

Diamine Fast Black X possesses very good fastness to light, washing, and organic acids.

An after-treatment with potassium bichromate and acetic acid, or formaldehyde and acetic acid will increase its fastness to washing and acids considerably.

Color Cards.

Brilliant Fast Blue 2 G; Farbenfabriken of Elberfeld Co., New York City.

Two samples of cotton yarn, one showing a 4 per cent. dyeing and the other a 3/4 per cent. dyeing of Brilliant Fast Blue 2 G. This dye is particularly well adapted for self shades.

Algole Green B paste; Farbenfabriken of Elberfeld Co., New York City.

A new dyestuff adapted for dyeing or printing. Full working directions are given for each operation. Two samples are given showing 5 and 20 per cent. dyeings on bleached and mercerized cotton yarn.

Katigen Indigo C L G Extra; Farbenfabriken of Elberfeld Co., New York City.

A new blue sulphide color for loose cotton, yarns, and piece goods. Two per cent. and 7 per cent. dyeings are shown on cotton yarn.

Mill Construction in 1907.

IMPORTANT ENLARGEMENTS AND IMPROVEMENTS.

(Continued from December.)

COTTON.

ALABAMA.

Alexander City. Russell Mfg. Co. Installed 2,736 new spindles for making 24/1 underwear yarns.
Anniston. American Net & Twine Co. New addition erected. Added 5,000 spindles.
Anniston. Anniston Mfg. Co. Addition built, 50 by 60 feet, one story.
Birmingham. Avondale Mills. Installed 1,175 new Northrop looms, replacing old ones.
Florence. Cherry Cotton Mills. Replaced some old spinning, twisting and roving frames by new improved frames. Put in new steam plant to generate electricity, changing entire mill to electric drives.
Jacksonville. Ide Cotton Mills. Increased capital stock to $750,000. New mill of 25,000 spindles built and an electric power plant.
Montgomery. People's Cotton Factory. Installed 10 new speeders.
Prattville. Prattville Cotton Mills. Added 2,000 new spindles.
Spigner Station. Alabama Cotton Mills. Installing 3,300 spindles; 50 looms, and carding machinery; also 200 h. p. boiler and large dynamo for electric light plant.

CALIFORNIA.

Oakland. California Cotton Mills. Increased capital stock from $1,250,000 to $2,000,000.

CONNECTICUT.

Bridgeport. Bridgeport Elastic Fabric Co., Inc. New building erected, 100 by 57 feet; 1 story. New machinery installed. Total, 35 looms.
Danielson. Danielson Cotton Co. Two new filling frames installed.
Middletown. Russell Mfg. Co. New dye house, 232 by 42 feet, two and one-half story, brick.
Moosup. Floyd Crauska Co. Company incorporated; capital, $100,000. Addition built to plant. Large amount carding and spinning machinery installed.
Willimantic. American Thread Co. Making enlargements to the plant. No. 6 mill under way. Plans made for new dye house, 60 by 190 feet, 2 stories, brick.

GEORGIA.

Carrollton. Mandeville Mills. No. 2 mill erected; 10,000 spindles; making 16 to 32s yarns, 2 and 3 ply.
Cartersville. American Textile Co. Installed 5,000 spindles and 120 looms.
Cedartown. Standard Cotton Mills. Added 2,500 new spindles.
Dallas. Paulding County Cotton Mfg. Co. New addition erected, 90 by 120 feet; 5,040 new spindles installed, giving total of 10,000.
Griffin. Kincaid Mfg. Co. Added 6,000 spindles and 200 looms.
Habersham. Habersham Mills. Addition built to plant and 5,120 new spindles put in.
Quitman. Atlantic & Gulf Mills. Increased capital stock to $250,000. Added 8 40-inch cards, 1 picker, 8 combs and 1 lapper.
Sargent. Wahoo Mfg. Co. Rebuilding plant destroyed by fire. 6,400 spindles.
Tennille. Tennille Yarn Mills. Increased capital stock to $100,000. Added 5 cards and 3 speeders.

KENTUCKY.

Paducah. Cohankus Mfg. Co. Added 1,700 new mule spindles.

MAINE.

Biddeford. Pepperell Mfg. Co. Addition of another story to Mill No. 2 of Laconia Division to relieve congestion of other machinery.
Saco. York Mfg. Co. New mill erected, 350 by 80 feet, 4 stories. New looms and cloth finishing machinery to be installed. Also new boiler and power house built.

MASSACHUSETTS.

Blackstone. Blackstone Mfg. Co. New 260 h. p. boiler installed; 7,168 Draper patent spindles and 152 Northrup looms.
Chicopee. Chicopee Mfg. Co. Installed new generator, also number of new spinning frames, driven by electric motors.
Fall River. American Thread Co. Kerr Mill. New building, 150 by 300 feet, 5 stories, under way.
Fall River. Heywood Narrow Fabric Co. New addition, 100 by 80 feet, one story, including ell, 2 stories, 30 by 50 feet.
Fall River. Maplewood Mills. New office building erected, 49 by 58 feet.
Fall River. Pocasset Mfg. Co. Capital stock increased from $600,000 to $1,200,000.
Fall River. Weetamoe Mill. Installed 150 wide looms, replacing narrow machines.
Housatonic. Monument Mills. New addition built, 128 by 60 feet. Work underway on new building 112 by 84 feet, 5 stories, to be equipped with 12,000 spindles.
Indian Orchard. Indian Orchard Co. Occupy increased space. New machinery put in.
Lawrence. Atlantic Cotton Mills. New weave shed, 300 by 70 feet, 2 stories, under construction.
Lawrence. Lawrence Duck Co. New mill built and equipped.
Lowell. Appleton Co. Installed 250 new looms.
New Bedford. Manomet Mills. Capital stock increased to $2,000,000. No. 2 mill under construction; 500 by 113 feet, 4 stories.
New Bedford. Taber Mill. New spinning plant. 60,864 spindles. Fine piece goods.
Southbridge. Central Mills Co. Part of old mill torn down. New addition built to replace old and also provide for increase of production. Added 2,000 new spindles and 50 looms.
Waltham. Boston Mfg. Co. Installed 240 new looms.
Williamstown. Williamstown Mfg. Co. Entirely new equipment installed in card and picker rooms.
Winchendon. N. D. White & Sons. Increased capactiy of No. 2 mill 25 per cent., total 244 looms. Contemplate building 2-story brick building, 304 by 54 feet, for weaving, beaming, cloth room and repair shop.
Natchez. Natchez Cotton Mills. Installed automatic looms in the plant.

NEW HAMPSHIRE.

Dover. Cocheco Mfg. Co. Rebuilt and equipped with new machinery mill destroyed by fire.
Manchester. Amoskeag Mfg. Co. Installed 1,250 additional looms.
Salmon Falls. Salmon Falls Mfg. Co. Installed 6,000 ring spindles, replacing old mules.

NEW JERSEY.

New Brunswick. Johnson & Johnson. Addition under way to old mill. 10,000 ring spindles and 250 new looms to be added. Expect to have in operation July 1st.
Passaic. Brighton Mills. Addition 120 by 121 feet, 2 stories, erected. Added 3,120 new spindles, giving total 6,240 ring and 1,860 twisting spindles.
Passaic. McLeary, Andrew, Co. Passaic Mills. Overhauled power department; installed new boilers and filtration plant (Hungerford & Terry); capacity, 175,000 gallons per day.

NEW YORK.

Brooklyn. Salmon, Wm. 12 new looms installed. Ribbons and hat bands made in addition to braids and trimmings.
Buffalo. Buffalo Weaving & Belting Co. New 3-story building erected; 5,000 spindles and 50 additional looms; also new dye house.
Glen Falls. Standard Textile Co. New building erected here, replacing plant destroyed by fire. Cotton batting.
Jamestown. Chautauqua Towel Mills. Addition built to bleaching department. New equipment installed.
Johnstown. Little Falls Fiber Co. Branch plant established here; 5 garnetts; 3 preparers. (Main plant at Little Falls.)

Little Falls. Little Falls Fiber Co. Purchased adjoining building (Anchor Mill property) and equipped to manufacture cotton bats and shoddies.
Lockport. Niagara Cotton Batting Co. Doubled capacity of mill.
New York Mills. New York Mills. Addition built for enlarging, finishing and bleaching departments.
Oswego. Standard Spinning Co. Addition to picker building, 52 by 52 feet, 2 stories.
Troy. Draper, W. H. & Son. Rebuilt cordage plant destroyed by fire.

NORTH CAROLINA.

Albemarle. Efird Mfg. Co. Installed 6 new spinning frames, making 17,000 spindles.
Belmont. Chronicle Mills. New mill erected; 5,000 spindles; known as Mill No. 2.
Charlotte. Elizabeth Mills, The. Addition erected; 6,000 new spindles installed.
Cherryville. Cherryville Mfg. Co. New carding and drawing machinery installed, replacing old ones.
Cherryville. Gaston Mfg. Co. No. 2 Mill erected; 40/2 ply yarns; 5,000 ring spindles.
Concord. Franklin Cotton Mills. Installed 6,000 new spindles.
Cornelius. Cornelius Cotton Mills. Installed finishing plant.
Cumberland. Houston, J. Fred & Co. New building, 340 by 75 feet; new 250 h. p. water wheel installed. To add 5,000 spindles.
Draper. German-American Co. Installed 10,000 new spindles.
Edenton. Edenton Cotton Mills. Added 2 new spinning frames (224 spindles each).
Elizabeth City. Elizabeth City Cotton Mills. Installed 8 new spinning frames and a 100 h. p. boiler; also erected 2-story brick office building, 14 by 16 feet.
Fayetteville. Holt-Williamson Mfg. Co. Rebuilt dye house destroyed by fire.
Fayetteville. Tolar, Hart & Holt Mills. Installed 1,368 new spindles; 13,224 total spindles.
Gastonia. Arlington Cotton Mills. New 1-story building erected, 178 by 55 feet; 3,000 to 4,000 new spindles installed; also cone winders.
Greensboro. Pomona Mfg. Co. Increased machinery with 8,000 new ring and 4,000 twister spindles.
Greensboro. Proximity Mfg. Co. Added 116 40-inch cards and 24,000 spindles in new addition, 130 by 440 feet, 3 stories, brick; also enlarged dye house and additional machinery put in.
Henderson. Harriet Cotton Mills. No. 2 Mill. 12,000 spindles; ply yarns.
Henderson. Henderson Cotton Mills. Increased machinery equipment with 24 spinning frames, 256 spindles each.
Kinston. Kinston Cotton Mills. Increased capital stock; general improvements made to plant.
Lowell. Lowell Cotton Mills. Erected No. 2 Mill. 12,000 ring spndles.
Mt. Holly. Albion Co. New addition built and 2,450 new spindles installed.
Newton. Catawba Cotton Mill. 3,360 additional spindles installed; also electric power plant and lights.
Roanoke Rapids. Rosemary Mfg. Co. Operate 150 looms on variety new damask fabrics. Increased machinery to 700 looms and 27,000 spindles.
Shelby. Belmont Cotton Mills Co. Added 1,000 new spindles, making total of 4,000.
Wake Forest. Royall Cotton Mills. Addition 120 by 80 feet, 3 stories, erected; installed 5,000 ring spindles, 2,240 twisting spindles and 17 40-inch cards.

PENNSYLVANIA.

Chester. Jefferson Mills. J. E. Fricke Co. Added 3,000 spindles for making 8s yarns.
Mohn's Store. Worley Bros. Rebuilt cotton batting mill destroyed by fire. 3 sets cards.
Philadelphia. Baxter, Kelly & Foust, Inc. Installed 20 new looms and dyeing and finishing plant.
Philadelphia. Courtrai Mfg. Co. Purchased Crawshaw Mills. Removed to same. New machinery installed.
Philadelphia. Feldstein, H. & Co. Added 10 new looms.
Philadelphia. Hoffman, De Witt & McDonough. New building erected, 150 by 50 feet; 40 new looms added.
Philadelphia. Schadewald Mills. Installed 65 additional looms for hair cloth.
Philadelphia. Wall, Daniel. 14 additional broad looms installed.
Swissvale. Pittsburg Waste Co. of Pittsburg. Branch plant established here.

RHODE ISLAND.

Auburn. Auburn Braiding Co. Rebuilt plant destroyed by fire. New building 100 by 50 feet, 2 stories. Installed 300 new braiders.
Bellefont. Brindle Webbing Co. Added 5 new looms.
Central Falls. Reliable Mfg. Co. $25,000. F. H. grover, president; S. L. Ainscough, treasurer. Removed to larger quarters and added 4,000 to 5,000 new spindles.
Pawtucket. Blackstone Webbing Co. Addition built to plant and 30 new looms put in; total of 70.
Pawtucket. Burgess Mills. To add 1,294 (Northrop) looms.
Warren. Warren Mfg. Co. Increased capital to $1,200,000. New mill erected; connected with main mill by annex; equipped with 34,496 mule and 5,776 ring spindles.
Woonsocket. Lawton Spinning Co. New thread mill under construction.
Westerly. Lorraine Mfg. Co. Installed 80 new looms, replacing old ones; also number of new spinning frames.

SOUTH CAROLINA.

Charleston. Royal Bag & Yarn Mfg. Co. Installed 2,500 new spindles.
Clinton. Lydia Cotton Mills. Installed 5,000 new spindles and 150 looms.
Gaffney. Gaffney Mfg. Co. Considering new equipment of 20,000 to 30,000 spindles with full complement of looms and other machinery.
Greenville. Carolina Mills, The. Erected new building; increased machinery with 6,000 new spindles and 180 looms.
Greenville. Woodside Cotton Mills. Added 8,000 spindles and 200 (Draper) looms.
Greers. Victor Mfg. Co. 6,000 additional spindles installed in the plant.
Laurens. Watts Mills. Added 96 feet to weave room to accommodate 200 looms and 8,600 spindles.
Liberty. Liberty Cotton Mills. 30 ft. addition built; 2,500 spindles added.
Pendleton. Pendleton Cotton Mill. Erected an addition to plant and increased spindles to 10,000.
Ware Shoals. Ware Shoals Mfg. Co. Addition built to mill, completing original plans. Installed 20,000 new spindles and 500 looms; giving total of 50,000 ring spindles and 1,400 looms.
Yorkville. Neely Mfg. Co. Addition, 77 by 152 feet, built. Added 2,666 new spindles.

TENNESSEE.

Fayetteville. Elk Cotton Mills. Added 4,000 new spindles; addition built.
Knoxville. Knoxville Cotton Mills. New addition built; installed 7,000 new spindles.

TEXAS.

Celeste. Perrin Cotton Mills. Rebuilt plant destroyed by cyclone, April, '07. 5,000 ring spindles.
Hillsboro. Hillsboro Cotton Mills. Addition built to plant; 1,000 new spindles added and 36 looms.

VERMONT.

Burlington. Chace Mills (No. 3). Installed 3 new boilers.

VIRGINIA.

Danville. Dan River Cotton Mills. Installed 288 Northrop looms.

WOOLEN.

ALABAMA.

Newton. Killebrew, T. J. & Son. Replaced old machines with new speeder and slubber. New dye house added. Dye raw stock. New 2-story brick building, 40 by 80 feet, under construction; first floor for store and warehouse; second, pants department.

CALIFORNIA.

Maryville. Maryville Woolen Mills. New addition built, 80 by 40 feet, for stock and sample rooms and garment factory.

CONNECTICUT.

Baltic. Shetucket Worsted Mills. New addition, 4 stories, to mill; also new boiler house, 30 by 64 feet, and engine room, 33 by 33 feet.
Broad Brook. Broad Brook Co. Installed 7 new Knowles looms. Erected new finishing room, 43 by 50 feet, and installed 7 new looms and finishing machinery, including up-to-date shrinking plant.
Mechanicsville. French River Textile Co. Added 2 new looms in pattern room; also 2 new sets cards.

Norwich. Preston Woolen Co. (Dept. Reliance Worsted Co.) New building erected, 80 by 60 feet, replacing plant destroyed by fire.
Stafford Springs. Mullen, T. F. & Co. Added 6 new looms.
Stafford Springs. Rhode Island Worsted Co. Capital stock increased $40,000 to $160,000. New building erected and plant removed from Indian Orchard.
Stafford Springs. Warren Woolen Co. Built new 2-story addition, connected with other building; and installed 3 new sets cards.
Talcottville. Talcott Bros. Addition erected, 3 stories; looms installed; also new equipment installed in card room and finishing department.

ILLINOIS.

Lacon. Lacon Woolen Mills. Jno. Grieves Sons. Incorporated $25,000 capital. New addition built to plant and 24 new looms, 6 sets cards and 2,520 spindles installed.

KANSAS.

Oakland. Topeka Woolen Mfg. Co. Increased capital stock to $75,000. Improvements made to mill, including new dry house.

MAINE.

Camden. Knox Woolen Mills. Addition built, 18 by 45 feet, for engine and dynamo room. New 250 h. p. engine installed.
Limerick. Limerick Mills. Added 8 new 200 spindle spinning frames, giving total of 3,600 spindles.
North Monmouth. McIlroy, John H., Son & Co. Remodelled J. R. King factory for making bed blankets. Added 14 new looms; making total equipment 6 sets; and 50 broad looms.
Sanford. Goodall Worsted Co. Addition built to mill, two upper stories, 60 by 134; lower, 60 by 100. Installed mostly spinning frames.
South Sanford. Jagger Bros. New mill erected, 100 by 54 feet, 3 stories, with separate engine and boiler house, 30 by 34 feet.

MASSACHUSETTS.

Clinton. Litchfield Worsted Co. Installed 12 new looms and dye plant.
Clinton. Pickford Worsted Co. New 2-story building, 100 by 36 feet. Also an ell, 20 by 30 feet, for power house.
Fitchburg. Shirreffs Worsted Co. New weave shed erected, 176 by 95 feet, one story. Installed 44 new looms.
Globe Village. Hamilton Woolen Co. Old building replaced with new one for dye house.
Lawrence. Rutter Bros. Installed weaving plant, 40 looms, for making men's wear and carriage cloths.
Lowell. Bigelow Carpet Co. Building new 6-story annex, 49 by 62 feet; and a new mill, 218 by 62 feet, 5 and 6 stories.
Lowell. Massachusetts Mohair Plush Co. New building, 110 by 70 feet, 5 stories, for furnishing, stripping and some spinning.
Methuen. Tremont Worsted Co. New weave shed, 135 by 60 feet, one story; 16 new looms added.
Middleboro. Nemasket Worsted Mills. Replaced old looms with 70 new ones.
North Adams. North Adams Mfg. Co. Installing new 500,000 gallon filtration plant. Also put in battery of 200 h. p. electric motors.
North Adams. Waterhouse & Howard. New addition built, 85 by 40 feet, one story. Removed 70 looms from old building to new one; vacated space filled with spinning frames and twisting machinery.
North Andover. Brightwood Mfg. Co. New dye house erected.
West Millbury. Millbury Worsted Co. Added 12 new looms, giving total of 30.
Worcester. Whittal, M. J. Addition built to main building; 2 sets woolen cards installed for woolen yarns.

MICHIGAN.

Eaton Rapids. Horner Bros. Building 2-story addition, 50 by 75 feet; carding and spinning machinery to be installed.
Sault Ste Marie. Soo Woolen Mills. Addition built to plant and added 2 new sets cards, 576 spindles and 10 knitting machines. Make pants, working shirts and socks.

NEW HAMPSHIRE.

Guild. Granite State Mills. Fairbanks & Dorr. Addition built, 50 by 35 feet, 2 stories and basement. Installed 2 sets cards, 2 300-spindle mules and 20 new looms.

NEW JERSEY.

Camden. Highland Worsted Mills. Addition, 150 by 52 feet. Added 20 spring frames; 4,000 spindles.
Garfield. Garfield Worsted Mills. Addition to finishing plant.
Passaic. Botany Worsted Mills. One of the one-story mills, 75 by 110 feet, being raised to 3 stories. About $12,000 expended.
Trenton. Princeton Worsted Mills. Added 22 new looms, skein winding and skein dyeing machinery.
Trenton. Williams, John, Mfg. Co. Removed branch plant to main mill at Phila., Pa.

NEW YORK.

Amsterdam. McCleary, Wallin & Crouse. New 3-story addition, 150 by 80 feet; manufacturing and storage purposes. Also addition to finishing plant.
Fulton. Fulton Worsted Mills (Am. Woolen Co.). New building, 2 stories; upper floor, shipping room; ground floor equipped with washing and shearing machinery.

OHIO.

Cleveland. Cleveland Worsted Mills Co. Large addition built to plant and 60 new looms installed; total of 560 looms.

PENNSYLVANIA.

Doylestown. Lund, Wm. & Son. Leased Clear Spring Worsted Mills. Spinning department operated as branch of Camden (N. J.)
Norristown. Hirsh, Abraham, Co. Removed to new building erected, 100 by 75 feet, 3 stories, brick. Equipped with electricity.
Philadelphia. Beetem, E. C. & Son (Carlisle). Branch mill at 2125 N. Hope St. Purchased plant of Keystone Carpet Mills, York, Pa.
Philadelphia. Bochman, F. A. & Co. New addition; two one-story additions; 115 by 62 feet; 57 by 62 feet, brick.
Philadelphia. Boggs, John, Sons. Installed 30 looms for ingrain carpets.
Philadelphia. Bush & Terry, Jasper and Thayer Sts. New 4-story brick building, 48 by 61 feet, under construction.
Philadelphia. Erskine, Wm. Purchased plant formerly run by Wm. Dodds, 16 looms, and consolidated with present mill.
Philadelphia. Kerr, Saylor & Co. Purchased plant of H. Sassman & Co. Consolidated with their plant.
Philadelphia. Masland, C. H. & Sons. New building, 172 by 88 feet, one story and basement, brick.
Philadelphia. Wright & Hall Textile Co. Added 38 new looms.
West Conshohocken. Merion Worsted Mills. New 3-story brick building; replaces plant destroyed by fire.
Hope Valley. Youngman & Hammond. Taken over plant of defunct Taylor Mfg. Co. New machinery installed.
Pascoag. Sayles, A. H. & F. L. Operate plant formerly known as Hawthorne Worsted Mills. Make fancy worsted fabrics; 31 looms.
Providence. Colwell Worsted Mills. New mill erected; main building, 150 by 70 feet; weave shed, 150 by 60 feet, one story, with separate boiler house, 40 by 40 feet. Operated by electricity; almost 75 new looms.
Woonsocket. Montrose Woolen Co. Removed to new 3-story mill erected by them. 72 looms installed.
Woonsocket. Perseverance Worsted Co. New 3-story building under way. Accommodate 120 looms.

KNIT.

ALABAMA.

Huntsville. Rowe, W. H., Knitting Co. Installed 4 new spinning frames.

CONNECTICUT.

Addison. Glastonbury Knitting Co. New addition, 28 by 34 feet, one story, to No. 1 Mill for engine room.

GEORGIA.

Columbus. Perkins Hosiery Mills. Installed 80 new knitting machines.
Columbus. Topsy Hosiery Mills. Added new knitting machinery, increasing capacity about 25 per cent. Also enlarged warehouse.
Hampton. Henderson Mfg. Co. New building erected. 2,000 ring spindles installed for making yarns for knitting plant.
Montezuma. Montezuma Mfg. Co. To install bleachery in knitting plant for bleaching in the piece.

ILLINOIS.

Chicago. Iwan, G. Redfield Knitting Works, 578 Larrabee St. Removed here from Redfield, South Dakota.
Chicago. Schwartz Knitting Co. Moved plant Minneapolis, Minn., to this city.
Kankakee. Paramount Knitting Co. Addition built to plant at this place.
Rochelle. Vassar Swiss Underwear Co. Capital stock increased to $200,000. New building erected and 25 additional knitting machines put in.
Rockford. Burson Knitting Co. New building erected, 140 by 115 feet, 5 stories. New machinery installed.

INDIANA.

Fort Wayne. Wayne Knitting Mills. Installed 26 (Schubert & Salzer) full fashioned hosiery machines.
Roanoke. Wayne Knitting Mills (Fort Wayne). Branch plant started here. Cotton and woolen full fashioned hosiery.

IOWA.

Des Moines. Des Moines Hosiery Mills. Contemplate addition of branch to looping department in centre of town.

MASSACHUSETTS.

Highlandville. Brooks, John F., Co. New addition erected, 36 by 60 feet, 2 stories, brick.
Lowell. Lawrence Mfg. Co. Putting in foundation for new building, 280 by 100 feet, 5 stories, which they expect to erect next season.
Northampton. McCallum Hosiery Co. Installed 18 foreign machines; three are for making silk lace hosiery.
South Framingham. Geo. E. Wye Co. Alterations made to factory at this place. To remove plant from Needham.
Springfield. Reliable Mfg. Co., Canaan, Conn. Branch factory to be established here. Eighty new machines to be added.
Wakefield. Harvard Knitting Mill. Brick addition built, 152 by 71 feet, 3 stories and basement, for storeroom, etc.
Waltham. American Knitting Co. New building being erected, 70 by 40 feet, 3 stories. Additional machinery to be put in.
Ware. Ware Hosiery Co. Purchased plant of Clinton Hosiery Co.

MICHIGAN.

Detroit. Chicago Hosiery Co. Erected new mill, 155 by 45 feet, 2 stories. Removed plant to new quarters.
Detroit. Detroit-Alaska Knitting Mills. New 2-story brick building erected.
Middleville. Thornapple Knitting Co. $125,000. Additional machinery installed, giving total of 37 knitting and 41 sewing machines.
Owosso. Burnett Knitting Co. Repaired plant damaged by fire. Installed new boiler.
Pontiac. Pontiac Knitting Co. Rebuilt warehouse destroyed by fire.

MINNESOTA.

Mankato. Mankato Mills Co. Installed 2 new sets cards; 10 ribbers; 10 full automatic knitting machines; winder and dryer.
Minneapolis. Minneapolis Knitting Works. Discontinued hosiery branch and manufacture exclusively "M" waists and infants' "M" knit bands.

NEW YORK.

Amsterdam. Chalmers Knitting Co. Capacity increased; additional floor space and new machinery.
Amsterdam. Stewart, John K. & Sons. Added 2,500 spindles.
Averill Park. Faith Knitting Co. Plant destroyed by fire. New building erected; main mill 260 by 60 feet, 2 stories.
Brooklyn. Kayser, Julius & Co. Installed 10 (Schubert & Salzer) machines for full fashioned silk hosiery.
Cohoes. Fuld & Hatch Knitting Co. (of Albany). New yarn plant under construction; 7,000 spindles: 8s, 12s and 40s yarns, carded and combed.
Cohoes. Yale Textile Co. Additional space secured in present building and capacity increased.
Hudson. Union Mills. Increased knitting equipment. Four (Gormley) machines put in.
Little Falls. Gilbert Mfg. Co. Erected No. 2 Mill, 200 by 75 feet, 6 stories; also new dye house.
New Hartford. Maxwell Mfg. Co. Added new dye house. Capacity 500 doz. men's ribbed goods per day.
New York. Rosano, S. Taken over business formerly run by S. Elberg.
Poughkeepsie. Lindenwald Mills. C. F. Hoag. Doubled production. Purchased Grosser machines from Hawley (Pa.) Knitting Mills Co. Total now of 200 knitting and 30 sewing machines.
Sauquoit. Lewis Knitting Co. Addition to plant and new machinery put in.
Syracuse. West Bros. New plant erected; main building, 200 by 60 feet, brick, with separate dye house and boiler room.
Troy. Troy Knitting Co. Purchased J. H. Murphy Co.'s plant at Cohoes; operate as a yarn mill. Equipment 10,000 spindles. Knitting machinery removed to Troy plant.

NORTH CAROLINA.

Durham. Durham Hosiery Mills, Inc. Added 3,000 (Whitin) spindles and 84 automatic knitting machines.
Enfield. Enfield Knitting Mills. New company organized. $30,000 capital. Rebuilt plant destroyed by fire. Installed 100 knitting machines.
Raleigh. Martin Hosiery Mills. New dye house built. Capacity 600 lbs. daily. Also make finer grades of hosiery.
Selma. Selma Knitting Mills. New addition for dye house. Also added new machinery, increasing capacity.
Winston-Salem. Hanes, P. H., Knitting Co. No. 2 Mill erected, 105 by 80 feet, 4 stories.

OHIO.

Gibsonburg. Roth, Jos. & Co. (Toledo). Branch mill. Gloves. 50 knitting machines.
New Richmond. Dormer Bros. Co., The. Plant destroyed by fire. New building, 60 by 90 feet, 4 stories; re-equipped with new machinery.

PENNSYLVANIA.

Bernville. Durable Hosiery Mill. Finishing department added. Also quantity of new knitting machinery.
Dorrancetown. Werkheiser Hosiery Mill. Installed 15 new machines.
Elverson. Hawk Knitting Co. Branch mill started here. See main plant at Reading.
Hamburg. Hamburg Hosiery Mills. Installed number of new knitting machines (Boss and Standard).
Hamburg. Hamburg Knitting Mills. Several new knitting machines and ribbers installed.
Hawley. United States Knitting Mills Co. Installed plant for throwing silk; 8-96 spindle winders and spinners, doublers, etc., to conform.
Honesdale. American Knitting Co. Purchased a building 100 by 33 feet, 2 stories, brick, for their plant.
Kutztown. Kutztown Knitting Mills. Addition 32 by 65 feet, 3 stories, erected, for finishing department and stock room.
Lebanon. Hiester & Hirst. Erected new mill at this place, removed plant from Womelsdorf. Seamless cotton hosiery. 29 knitting machines.
Newville. Searles Knitting Co. (Pottstown). Branch mill established here.
Olney. Olney Knitting Mills. Misses' ribbed hosiery. Added 4 knitters, 4 ribbers and 2 loopers.
Philadelphia. Achuff Knitting Mills, Inc. Added 20 knitting and 14 sewing machines.
Philadelphia. Adams Hosiery Co. Removed to N. W. cor. 2d and York Sts. Added 10 new machines.
Philadelphia. Carlisle Hosiery Co. $10,000. Incorporation Carlisle Hosiery Mills. Increased equipment to 50 knitters.
Philadelphia. Defiance Knitting Mills, Fretz Bldg, 10th and Diamond Sts. Women's and children's ribbed underwear, cotton wool, worsted and mercerized. Added 6 new Swiss rib machines, also finishing machinery.
Philadelphia. Elk Knitting Mills. New building, 34 by 96 feet, brick, 2 stories and basement, 21st and Jefferson Sts. Additional machinery installed.
Philadelphia. Harrison Knitting Co. Increased floor space and put in 40 new knitters.
Philadelphia. Kent Knitting Mills, 2726 Mutter St. Increased to 100 knitters; 4 ribbers; 10 loopers.
Philadelphia. Lazowick Bros., 627 Lombard St. Installed plant for finishing hosiery for the trade.
Philadelphia. New Marion Hosiery Mills. Name under which Marion Hosiery Mills operate John H. Worster's Sons' plant which they purchased.

Philadelphia. Saxony Hosiery Co. Increased floor space and put in additional machines, increasing to 170 knitters, 27 ribbers and 17 loopers.
Philadelphia. Standard Hosiery Co. New spinning mill, 150 by 50 feet, under construction; 10,000 spindles; 10s to 20s yarn for knitting department; new boiler and engine house, 36 by 98 feet; picker house, 36 by 44 feet; and dye and bleach house, 18 by 98 feet. Also an addition to present building, 18 by 98 feet, 5 stories.
Philadelphia. Taubel, W. F. Added 25 new knitters.
Pine Grove. Pine Grove Mfg. Co. Added 20 latch needle knitting machines.
Reading. Berkshire Knitting Mills. New building erected, 150 by 80 feet, for making full fashioned underwear.
Reading. Consolidated Knitting and Spinning Mills. Addition built and branch plant at Montello removed here.
Reading. Eclipse Knitting Co. Removed plant from Eighth and Franklin Sts. to 746-748 Cherry St. Increased capacity.
Reading. Hampden Knitting Mills Co. Added 30 embroidery machines and a new 125 h. p. boiler.
Reading. Nolde & Horst Co. New addition, 380 by 50 feet, 5 stories.
Reading. Reading Glove & Mitten Mfg. Co. Installed new 35 h. p. engine and 60 h. p. boiler; also doubled capacity machinery.
Reading. Miller, S. S. Increased capacity of plant from 1,000 to 1,500 dozen per week.
Reading. Yocum, H. Y. (Grill). Purchased Quality Knitting Mills. 60s plant. Operates a branch mill. Cotton half hose. 25 latch needle knitting machines.
Schuylkill Haven. Union Knitting Mills. Addition, 40 by 40 feet, 2 stories, made to main building, and one story, 32 by 80 feet, to bleach house.
Wernersville. Hain Bros. Purchased and operate Wernersville Hosiery Mill. Added 14 new knitting machines.
West Chester. Powell Knitting Co. Seamless hosiery looping and finishing. 45 loopers. Main office and factory, 28th and Parrish Sts., Philadelphia, Pa.
Wilkesbarre. Wilkesbarre Knitting Mills Co. Addition built to mill and oxidizing, skein dyeing and coning and finishing departments removed from Lee Park to Newtown, consolidating plants.
York. Crystal Hosiery Mills Co. Company incorporated with capital of $50,000. New dye house built.
York. York Knitting Mills Co. Added 100 new automatic knitters.

RHODE ISLAND.

Pawtucket. Lebanon Mills. Five-story addition built to plant.

TENNESSEE.

Athens. Athens Hosiery Mills. Rebuilt dye house, oxidizing, engine and boiler rooms.
Chattanooga. Mathis-Davis Hosiery Mills. Finishing and dyeing departments have been added.

UTAH.

Lehi. Standard Knitting Co. Additional machinery installed.
Salt Lake City. Salt Lake Knitting Works. Erected 2-story building, with basement. Old mill building used for warehouse.

VERMONT.

Northfield. Vermont Hosiery & Machinery Co. 40 additional machines to be in operation by Jan. 1st.
St. Johnsbury. Tilton, G. H. & Son (Tilton, N. H.) Branch mill established here. Seaming children's cotton hose.

VIRGINIA.

Danville. Danville Knitting Mills. Purchased new 3-story brick building, to which plant has been removed. New dye house and boiler and engine room erected at new location.
Roanoke. Roanoke Knitting Mills, Inc. Installed electric power plant. Also branch mills at Luray, Pulaski and Martinsville; 150 machines each.

WISCONSIN.

Janesville. Lewis Knitting Co. Leased additional building, giving double the capacty and floor space of the old plant. New knitting and stitching machines installed.
Kenosha. Rockford-Chicago Hosiery Co. Large addition for carding and spinning rooms. Also increased dye house equipment.
Marinette. Marinette Knitting Mills. Increasing equipment, 12 to 15 new machines.
Milwaukee. Standard Knitting Co. Purchased entire equipment of Crescent Knitting Co.'s plant (Appleton). Removed to Milwaukee.
Milwaukee. Wisconsin Knitting Works. Installed additional machinery and made general repairs to the plant.

SILK.

CONNECTICUT.

Marlborough Mills. Westminster Silk Mills. Miller, A. B. New 2-story brick building erected, replacing plant destroyed by fire.
New London. Brainerd & Armstrong Co., The. Added 100 new silk looms.
Norwich. J. B. Martin Co., The. Brick addition, 140 by 111 feet; 1 story; saw tooth roof. About 50 additional looms, with individual motors, put in.
South Manchester. Cheney Bros. Erecting 2 large brick mills, 3 stories high, for velvets.

NEW JERSEY.

Jersey City Heights. Grossenbach & Fimple (New York). New mill erected here. Equipped for making braids and millinery trimmings.
Passaic. Seaton, H. H., Co. (of Paterson). Leased additional space in Waterhouse Mill. Operate silk throwing plant; 5,000 spindles.
Passaic. Speirs Silk Co. of Paterson, N. J. Established branch plant in Waterhouse Mill. 12 ribbon looms.
Paterson. Baker & Schofield Co. Added 50 new box looms.
Paterson. Barbour-King Co. Installed more looms for making fine grade of curtains.
Paterson. Cohen, I. R. Operates annex in Barnert Mill, 32 looms on broad silks, where plant formerly operated by Paul Landau has also been installed.
Paterson. Fairhurst & Co. Purchased part of Wm. Strange Co.'s machinery and installed in their new mill.
Paterson. Harmony Silk Co. New mill, 205 by 52 feet, 2 stories and basement, to be known as Schmitz Mill. Will remove from old location (Barnert Mill).
Paterson. Holzman Silk Mfg. Co. Rented space in the Congdon Mill. Added number of ribbon looms and auxiliary machinery.
Paterson. Kuenneth, Geo. W. Removed plant to 112 Straight St. Increased facilities.
Paterson. Love, Robt. Purchased plant formerly run by Walton Bros.
Paterson. Luvan Silk Co. Added 18 new box looms, giving total of 60.
Paterson. Mapele Silk Mfg. Co. Charles Lehmann, president; David J. Maibrunn, treasurer and superintendent. Maibrunn, Petz & Co., s. agts. Erected new mill. 75 looms.
Paterson. Muller, Chas. E. Purchased Ackerman & Barton plant and removed to new location.
Paterson. Passaic Silk Co. Purchased plant Barnet & Fuchs. Operate as annex to plant in Sipp Mill.
Paterson. Post & Sheldon Corp. Plant formerly located at Dover (Del.) removed here. 100 looms.
Paterson. Rey, Louis A. Operates 40 looms on dress goods.
Paterson. Spoer & McGinley. Purchased additional machinery. 33 looms.
Paterson. Victory Silk Co. Added 42 new box looms.
Pompton Lakes. German Artistic Weaving Co. Addition built to plant to accommodate 100 looms; 50 installed.
West Hoboken. Mistletoe Silk Co. Purchased Schmidt & Meurer Silk Mfg. Co.'s plant.

NEW YORK.

Brooklyn. Champlain Silk Mills (Whitehall, N. Y.) Branch mill established at 10th St. and Driggs Ave. Yarns.
Gloversville. Gloversville Silk Mills. Addition of new 4th story made to mill for new cutting room.
Hornell. Steuben Silk Co. Purchased plant formerly occupied by the Liberty Silk Mills.
Middletown. Mack, Jos. S., Silk Co. Branch plant to be stablished here. Silk yarns.
New York. Kraemer, John A. & Co. Installed number of new ribbon looms with attachments for making passamenterie.
New York. New England Braid Co. (Meriden, Conn.) Established branch mill at this place.
New York. Reis, G. & Bro. Purchased Sperling Woven Label Co.'s plant.
New York. Taylor Textile Mfg. Co. New building erected at 218th St. and Bronxwood Ave.

New York. U. S. Woven Label Co. New building, 100 by 125 feet, 2 stories.
North Tonawanda. Niagara Silk Mill. New dye house and equipment.
Wellsville. Merrill Silk Co. (Hornell). Branch mill established here.

PENNSYLVANIA.

Allentown. Klatz & Bregenzer. Added 5 new looms.
Allentown. Rionor Silk Mill. One-story addition built, 34 by 52 feet. Installed 10 new looms.
Carlisle. Lockman Bros.' Silk Co. $60,000. New company organized to continue Lockman Bros.' Mill. Built new addition, 120 by 50 feet, 3 stories. Additional looms installed.
Easton. Continental Silk Mills (Paterson, N. J.) Work started on erection of new building, 103 by 60 feet.
Forty Fort. Forty Fort Silk Co. Added 19 new looms.
Kingston. Crane Bros., Inc. New mill erected, 200 by 50 feet, 2 stories, brick. Plant at Tobyhanna removed here.
Philadelphia. Germantown Braid Co. Enlarged plant by adding 100 braiders, giving total of 300.
Reading. Meinig, E. Richard & Co. Removed to new 4-story brick mill (210 by 50 feet) on McKnight St.
Shamokin. Eagle, J. H. & C. K., Inc. New mill building erected. 300 looms installed.
Wilkesbarre. Empire Silk Co. (Paterson, N. J.) Purchased buildings here and established branch plant. 48 looms.

RHODE ISLAND.

Riverpoint. Pawtuxet Valley Textile Co. Installed 40 new looms; winders and warpers to correspond.

MISCELLANEOUS.

MASSACHUSETTS.

Andover. Smith & Dove Mfg. Co. Addition, 327 by 62, 2 stories and basement for tow mill. Rearrangement made of flax machinery and addition of two new systems with necessary hackling, spinning and twisting. Increased production about 25 per cent.
Millbury. New building erected for United States Linen Co. damaged by fire.

NEW JERSEY.

Paterson. Kearns Bros. Enlarged by new addition, 100 by 200 feet, one story.

NEW YORK.

Auburn. Columbian Rope Co. New addition built, 3 and 4 stories, 100 by 600 feet.

PENNSYLVANIA.

Allentown. Laurel Hill Dyeing Co. Addition built, 18 by 26 feet, one story, brick, for finishing room, office purposes and vault.
Philadelphia. Angola Dyeing Co. New 2-story building erected, with 2-story power house.
Philadelphia. Fairhill Bleachery removed to new building, Emerald St., above Westmoreland. Latest improved machinery installed.
Philadelphia. Germantown Bleachery, Armat St. Installed equipment for dyeing colors on hosiery in addition to bleaching.
Philadelphia. Harvey, David & Sons. Installed 20 looms for manufacturing fiber floor coverings.
Reading. Reading Dyeing Co. New buildings erected; main one, 40 by 325 feet, one and two stories.

RHODE ISLAND.

West Barrington. Frost Finishing Co. Addition built, 71 by 30 feet, one story.

WEST VIRGINIA.

Wheeling. Stifel, J L. & Sons. New building erected, 100 by 50 feet.

Mill News.

Those interested in receiving early and more complete investigated information of projected new mills, enlargements, improvements, fires facts and gossip of the trade are referred to the Textile Advance News, issued weekly by the publishers of the Textile World Record, at $15.00 per year.

COTTON.

New Mills.

*Alabama, Childersburg. Construction work on the new building for the Coosa River Spinning Co. is almost finished. The equipment, consisting of 10,000 spindles for the manufacture of medium yarns, will be installed during January and it is expected that manufacturing will commence during February. D. L. Lewis, Sycamore, Ala., and A. De Court, Boston, are at the head of the new mill.

*Alabama, Sylacauga. The Sylacauga Mills, which we reported as being organized some time ago with a capital stock of $85,000, has not begun building operations as yet. A 5,000 spindle plant will be erected for the manufacture of 20s to 30s hosiery yarns. J. W. Brown is pres. and O. F. Luttrell, treas.

*Canada, Quebec, Three Rivers. The mill being erected for the Wabasso Cotton Co., Ltd., will be 400 by 300 feet. The building is the first of three mills to be erected in this place. The plant will be driven by electric power and will be up-to-date in every respect. C. R. Whitehead is pres., and L. R. Craig, treas.

Georgia, Ashburn. A site for the new building of the Shingler Cotton Mills, recently incorporated with capital of $250,000, has been selected. Plans are being prepared for a building to hold 10,000 spindles and 300 looms. It is reported that all the stock has been sold to local parties.

*Georgia, Ballground. A. J. Lovelady, who was reported as interested in a project for a new cotton mill, has effected formal organization as the Ballground Cotton Mills. The following officers have been elected. A. J. Lovelady, pres.; C. M. Wafford, vice-pres., and Frederick A. Abbott, general manager and superintendent. Work will begin within a few days on the foundations for a main structure, 75 by 320 feet, 2 stories high; picker room, 32 by 75 feet; dye house, 75 by 90 feet, and engine and boiler rooms, each 40 by 40 feet. The machinery equipment will include 10,000 spindles and 300 looms for the manufacture of denims and duck. Machinery equipment has not been ordered.

Georgia, Calhoun. The directors of the Echota Cotton Mills, incorporated in July with capital of $100,000, have decided to erect a plant with capacity for 10,000 spindles and 300 looms, for manufacturing print cloths. C. D. Milstead of Ludwig & Co., Atlanta, Ga., has been engaged as engineer, and is preparing to begin construction work. Site has been selected, as reported in Sep-

tember, and doubtless the work will be pushed to an early conclusion. Contracts for the machinery have not been awarded. Judge F. W. Harbin is president.

*Georgia, Griffin. The Cherokee Mills, which we have reported from time to time, are making contracts for machinery. As previously reported, the equipment will consist of approximately 10,000 spindles and 400 looms for the manufacture of cotton blankets and towels. Construction work on the plant was commenced in November. The Cherokee Mills have a capital stock of $200,000. J. J. Mangham is pres. and buyer.

*Georgia, La Grange. Fuller E. Gallaway, treasurer of the Elm City Cotton Mills, who was reported as at the head of the new Manchester Cotton Mills Company, advises us that permanent organization has not been completed and plans for a plant have not been made. It is expected that all details will have been attended to and the erection of a plant commenced early in 1908.

Georgia, Rome. E. A. Greene, H. A. Dean and Edward Dean are looking for a site on which to erect a plant for the Silver Creek Milling Company, recently reported incorporated with a capital of $40,000 with the privilege of increasing to $250,000.

*Georgia, Senoia. H. P. Redwine advises that plans for the proposed cotton mill will not be carried out at the present time.

Georgia, Woodbury. The Woodbury Mfg. Co. has been incorporated with capital stock of $50,000. The plans for a cotton mill are under consideration, but it has not been decided whether to build the mill here or at Oklahoma City., Okla. H. J. A. Aycock and F. S. Gator of Woodbury and E. V. Remington of Oklahoma City are the incorporators.

*Massachusetts, Lowell. The Josiah Harriman Narrow Fabric Company, previously reported as being incorporated with a capital of $10,000, began manufacturing November 25. Elastic and non-elastic fabrics are the product. Josiah Harriman is president, and Chas. W. Churchill, treasurer.

New Jersey, Hoboken. The Ayvad Mfg. Company, manufacturers of "water-wings," an article used in assisting beginners in swimming, is installing picking, carding and weaving machinery for the manufacture of cloth used by them. The machinery will be electrically driven, power equipment being furnished by the General Electric Company.

*New Jersey, Passaic. The Passaic Cotton Mills, organized some time ago for the manufacture of cotton duck for fire hose, automobile tires and similar purposes, will start manufacturing January 1. The company has a capital of $100,000 and has built a new plant and equipped it with new machinery since June. Geo. H. May (Newburg, N. Y.) is president; L. K. Cowdrey (Passaic, N. J.) treasurer; and Peter Reilly, superintendent and buyer. The product will be sold through Catlin & Company.

New York, Brooklyn. The Brooklyn Filter Bag Company has moved into their new 3-story and basement brick building at 200 Diamond Street. 40 looms have been installed and are being operated on sugar refiners, filter bags and cloths. Robt. Gadrock is manager and superintendent.

*North Carolina, Belmont. Plans have been completed for the buildings to be erected for the Majestic Mfg. Co., incorporated in October with capital stock of $250,000; $200,000 paid in. The main building will be a 1-story structure, 125 by 340 feet. Stuart W. Cramer, of Charlotte, will be in charge of construction, and work will commence next spring. As previously reported, 10,000 spindles will be installed to manufacture fine combed and carded yarns. A. C. Lindberger, president of the Chronicle Mills and the Imperial Yarn Mills (Inc.) of Belmont, is also president of the Majestic Mfg. Co. D. E. Rhyne is vice president, and S. P. Stowe, secretary and treasurer. It is expected that manufacturing will commence before October, 1908.

*North Carolina, Charlotte. The Sargent Cotton Mfg. Co. has been granted a charter with capital stock of $50,000 to manufacture yarns and cloth. Sumner B. and E. L. Sargent and J. M. Harry are the incorporators. Sumner B. Sargent as was reported last week, has purchased the interest of Thos. J. Lillard of the Fidelity Mfg. Co. Undoubtedly plans will be prepared in the immediate future for the erection of the new plant.

*North Carolina, Davidson. The Delburg Cotton Mills, incorporated some time ago with capital stock of $50,000 for the erection of a 2,500 spindle cotton yarn plant, is making rapid progress The original intention to begin manufacturing Feb. 1 will probably be carried out. J. P. Munroe is president and buyer. The product will be 12s to 20s cotton yarns.

North Carolina, High Point. Subscriptions to the proposed new cotton mill have reached $75,000 and it is reported that a definite organization will soon be formed.

*North Carolina, Maxton. The proposed cotton mill to be known as the Atlantic Cotton Mills, which we reported in October, will have a permanent organization in January, and it is expected that the construction of a plant for the manufacture of yarn will be started shortly after. It is planned to install 5,000 to 10,000 spindles. T. O. Evans, G. B. Patterson and L. T. Cook are interested.

*North Carolina, Mooresville. The Dixie Cotton Mill Co., incorporated early in the year, is nearly ready to start manufacturing. Buildings costing $35,000 are practically completed and part of the machinery is in place. 24s to 30s single and ply yarns will be manufactured on 5,000 spinning spindles and 2,400 twisting spindles. D. W. Brawley is president and buyer.

*North Carolina, Newton. The Ridgeview Cotton Mills, reports of which have been given previously, has not given out contracts for machinery equipment. 2,500 spindles and complementary machinery will be installed for the manufacture of 30s to 40s two-ply yarn. Construction work is going forward on a 1-story building, 764 by 79 1/2 feet. As previously reported, electricity will be the mo-

tive power. L. A. Phillips is president, and H. F. Smith, general manager and buyer.

*North Carolina, Roxboro. The building for the Longhurst Cotton Mill, reported incorporated in the spring, is completed and the equipment of machinery is now being installed. The equipment comprises 10,000 spindles and other machinery for manufacturing coarse cotton yarns. Machinery will be driven by electricity. J. A. Long is pres., and G. O. Coble, sec. and treas.

*North Carolina, Weldon. It is reported that contract for the erection of buildings for the Shaw Cotton Mills, incorporated with capital stock of $100,000 in September, will be let within a few days. Plans have been prepared for a 2-story main building, 50 by 150 feet. As previously reported, 5,000 spindles will be installed for the manufacture of 20s to 40 yarn. A gas power plant will be installed. W. T. Shaw is president and buyer, W. A. Pierce, treasurer, and O. L. Smith, superintendent.

*Oklahoma, Ardmore. There is a report that the Ardmore Commercial Club has definitely decided to erect a cotton mill to be in operation by the fall of 1908. It is proposed to build a $200,000 plant. A suitable site of 40 acres has been secured on the Rock Island R.R. and the city has agreed to furnish the water at cost, and the Natural Gas Co. has agreed to furnish fuel at cost, for a term of years. Undoubtedly the project will go through.

Pennsylvania, Philadelphia. The McKinley Thread Co., which is about to apply for a charter with a capital of $10,000, have secured quarters at 117 N. Orianna St., where they will commence operations about March 1. The plant will contain dressing machinery, tube winding and spool cotton machinery which will be used for the purpose of manufacturing sewing and glazed cottons and threads for insulating purposes, which they will sell direct. D. H. McKinley, formerly connected with the Philadelphia Thread Co., will manage the plant, the production being sold direct. The office of the company, until its plant is finally started up, is at 240 Chestnut St.

Rhode Island, Pawtucket. The Tulkette Mill, started by Geo. E. Double & Co., converters of New York, is making dress goods and specialties in cotton and wool. 115 looms will be in operation by Jan. 1. Space has been leased for 500 looms and this number will undoubtedly be operated within a short time. Jas. F. Aspley is supt. and Geo. E. Double & Co., 22 Thomas St., New York, are selling agents.

Rhode Island, Providence. The Rub Dry Towel Company has been incorporated with a capital stock of $100,000, and it is reported will establish a plant for the manufacture of cotton yarns and cloths. Horace A. Kimball, H. Earl Kimball and Frank W. Tillinghast are the incorporators.

*Rhode Island, River Point. Construction work on the new plant being erected for the Warwick Lace Works is progressing, and it is expected that the building will be ready for the installation of the machinery by Feb. 1.

*South Carolina, Charleston. Subscription books have been opened for the Carolina Waste Co., reported incorporated in November, with capital stock of $200,000. Half of the capital will be taken by Charleston investors and the other half by mill owners throughout the state. As previously reported, the main building will be 80 by 450 feet, and will be equipped for manufacturing batting, twine, blankets, rope, etc., from cotton waste obtained from the South Carolina mills. The company may be addressed: care Miller & Whaley, Charleston, S. C.

*South Carolina, Cheraw. No steps will be taken until January or February to erect a plant for the Cheraw Cotton Mills, reported incorporated with capital of $150,000. In the meantime plans are going forward, and when construction work does begin it will be pushed to an early completion and manufacturing begin without unnecessary delay. Jas. Dillingham, 256 Church St., New York City, is president, and A. G. Kollock, Darlington, S. C., treasurer. For the present Mr. Kollock has the matter in charge.

*South Carolina, Shelby. Construction work on the buildings for the Ella Mfg. Co., reported incorporated in September, is going forward steadily. The main building will be one story, 77 by 356 feet, with concrete floor. 5,000 spindles and 126 looms will be installed for the manufacture of convertible goods. Stuart W. Cramer is in charge of the construction, and it is reported that the machinery contracts have been awarded. The plant will be driven by electricity from the Southern Power Co.

*Tennessee, Chattanooga. It is reported that plans have been prepared for buildings to be erected for the Wachovia Mills. This company has been incorporated for some time, but the building operations have been delayed. The proposed mill will be equipped with 100,000 spindles and 3,500 looms. W. R. Young will be general manager and has the matter in charge.

Enlargements and Improvements.

*Alabama, Huntsville. The installation of additional looms and spinning frames in the plant of the Merrimack Mfg. Co. has been completed.

*Alabama, Jacksonville. As previously reported, the new buildings for the Ide Cotton Mills are practically completed and some of the machinery equipment has been installed. An electric power plant is being erected to supply power to the new mill and to the old plant.

Connecticut, Moodus. A. E. Purple, seine twine and cord manufacturer with 5,676 ring spindles, has installed 2 new twisters.

*Connecticut, Willimantic. The new mill, No. 6, of the American Thread Company is nearing completion and the roof will be put on within a few days. Work on the interior will be continued during the winter. The mills are at present shut down for six days in order to take stock and make repairs.

*Georgia, Dalton. The report that the equipment of the Elk Cotton Mills would be doubled, is incorrect. The present building was built for 10,000 spindles, 8,000 of which were installed. It is now planned to install an additional 2,000 spindles

and build a dye plant. The matter has not been definitely decided, however, and nothing will be done for the present. The company has capital of $200,000.

*Massachusetts, Fall River. The Lincoln Mfg. Company has had plans prepared for the following new additions: Weave shed, 223 by 281 feet; spinning mill, 158 by 268 feet; boiler house, 56 by 76 feet; power house, 54 by 77 feet and storehouse, 65 by 100 feet. The manufacture of fine cotton goods will begin in February, 1908.

Massachusetts, Fall River. The Hargraves Mills are installing two pairs of new Hetherington mules in No. 2 Mill.

Massachusetts, Fall River. The Estes Mills will erect a large addition in the spring. The Board of Directors will meet early in the year to consider plans, at which time full details will be given out. A new office building has just been completed and is in use.

*Massachusetts, Fall River. The new brick spinning mill for the Kerr plant of the American Thread Co. has been completed and the new turbine generator has been set up in the new power house.

*Massachusetts, Holyoke. The foundation for the new mill to be built for the Lyman Mills, which we reported in October, has been completed. The completed structure will be of brick, 5 stories high and 108 by 290 feet. The present equipment is 71,000 ring and 39,000 mule spindles and 2,400 looms operated on sheetings, drills, lawns and fancies. The capital stock is $1,475,000. James A. Burke has just been elected agent to succeed Ernest Lovering who resigned to become treasurer of the Dwight Mills, Chicopee, Mass.

*Massachusetts, Housatonic. The 5-story addition to the Monument Mills is nearly completed and it is expected that machinery will be installed before February 1.

*Massachusetts, Lowell. It can be definitely stated that John C. Meyer & Co., spool cotton and silk manufacturers, with plant at Jamaica Plain, will occupy the plant of the Pickering Mfg. Co., and that the plant at Jamaica Plain will be discontinued. All machinery, including dye house and bleachery, will be removed to Lowell. The removal will be completed by the first of May at the latest.

*Massachusetts, New Bedford. The cotton mill to be known as the Manomet Mill No. 2, is rapidly nearing completion. It is a brick structure, 501 by 131 feet, and five stories high. The estimated cost is $250,000. The B. F. Smith Company (Pawtucket) are building the mill.

*Mississippi, Vicksburg. It is reported that the plant of the Mississippi Valley Batting Co., which was recently destroyed by fire, will be rebuilt immediately.

*Missouri, Kansas City. Machinery has been installed during the past week in the Kansas City Cotton Mills Company, which completes the improvements started in the summer. It is reported that a second addition of 5,000 spindles is contemplated and will be installed within a few months. In addition to new machinery, the Kansas City Cotton Mills Company is erecting 2 storehouses, each 60 by 80 feet.

*New Hampshire, Dover. The addition which it was reported would be built to the plant of the Cocheco Mfg. Company is a very small building which they are building themselves for knitting work. No large building operations are contemplated at this time.

*New Hampshire, Salmon Falls. The new spinning frames are being set up in the No. 1 mill of the Salmon Falls Mfg. Company. We reported this increase in August.

*New York, Clark's Mills. Manufacturing will begin next February in the local plant of the Hind & Harrison Plush Company which is undergoing extensive repairs and improvements. 2/10s to 2/30s cotton yarns will be manufactured on 10,000 ring spindles and 5,000 twisting spindles. Arthur Hind is pres. and P. W. Copeland, treas., supt. and buyer. The company has a capital of $400,000.

*North Carolina, Charlotte. The Elizabeth Mills has completed a 78 by 182 foot addition for which construction work was started in the summer, and installed 6,000 spindles which are driven by electricity. Fine carded and combed cotton yarn will be manufactured from American and Egyptian cotton. The improvements cost about $100,000.

*North Carolina, Cooleemee. Construction work is going forward on an addition to the Cooleemee Cotton Mills, which is No. 3 Mill of the Erwin Cotton Mills Co. of Durham. It is understood that 8,000 spindles will be installed in the equipment. At present 47,000 spindles and 1,296 looms are operated.

*North Carolina, Gastonia. The 54 by 178 foot addition to the Arlington Cotton Mills, which we reported last May, has just been completed and machinery is being rearranged so that stock may be handled in a more economical manner. There is space for several thousand spindles, which will be added in the near future. 9,500 spring spindles and 6,000 twisting spindles are now operated on fine cotton yarn. G. W. Regan is pres., treas. and buyer.

North Carolina, Mt. Airy. The Laurel Bluff Cotton Mills is planning to install 2,000 spindles to replace old equipment for the manufacture of 14s to 24s cotton yarns. J. L. Brown, proprietor, is interested in receiving information with a view to contracting for new machinery.

*North Carolina, Roanoke Rapids. Construction work on the additions to the weave shed and the carding and spinning mill of the Rosemary Mfg. Co. is going forward, and it is expected that 5,000 spindles and 100 looms will be added before spring.

Rhode Island, Pawtucket. The Royal Weaving Co. has awarded contract to the J. W. Bishop Co. for an addition to its storehouse at the corner of Central Ave. and Sabin St. It is also reported that additions to the manufacturing plant are contemplated for the next few months. The plant is running full time and has a large number of orders on hand. 25,000 spindles and 1,040 broad looms

are operated on satins and linings. Darius L. Goff is pres.; Chas. A. Pervear, treas., and Jos. Ott is agent, buyer and supt.

Rhode Island, Woonsocket. Construction work on the new mill for the Lawton Spinning Co. is progressing. The foundation has been completed, and a gang of workmen are building the first story.

*South Carolina, Fairmont. The Tyger Cotton Mills are reported as contemplating the erection of a large cotton mill on a site about three miles below the present plant on the Tyger River. Plans are being prepared to develop water power. The Tyger Cotton Mills were sold at auction in July to H. C. Fleitmann of New York City and Lewis W. Parker of Greenville, S. C. The new owners have reorganized the original plant and are preparing to do an aggressive business.

*South Carolina, Gafney. The work of remodeling a building for the Gafney Mfg. Co. has been completed, but the additional machinery has not been ordered, it is understood. It was reported in November that 20,000 to 30,000 spindles with additional looms and other machinery would be added for the manufacture of print cloths.

South Carolina, Lando. The Manetta Mills have had plans prepared for a 3-story addition, 100 by 125 feet. They will install carding, spinning and weaving machinery. It is reported the machinery equipment has been contracted for.

South Carolina, Rock Hill. It is reported that the Aragon Cotton Mills are considering plans for extensive enlargements. At present 10,240 ring spindles and 280 looms are operated on brown sheeting. Alexander Long is pres., treas. and buyer. The Aragon Mills have a capital stock of $200,000.

*Tennessee, Knoxville. The 2-story, 63 by 130-foot addition to the Knoxville Cotton Mills has been completed. The first floor will be used as stock, picker and engine room and the entire second floor will be used for a spinning department. The capacity of the plant has been increased by installing the following machinery: 28 Lowell Machine Shop spinning frames of 240 spindles each, 2 Howard & Bullough pickers, 1 Howard & Bullough blowing system, 6 speeders and 2 intermediates from the Woonsocket Machine & Press Company, and 12 40-inch Whitin cards.

Mills Shutting Down.

*Connecticut, Phoenixville. The cotton yarn and twine plant started in October by Wm. Smith & Son of Montville has been shut down indefinitely.

Alabama, Birmingham. The Birmingham Cotton Mills, Adler Bros., props., have shut down and it is reported the machinery equipment has been sold and will be removed. 3,000 spindles were operated on filling yarns.

WOOLEN.

New Mills.

Canada, Ontario, Georgetown. Alfred Sykes, formerly of the firm of Sykes-Ainley Mfg. Co., Ltd., of Glen Williams, and another party of that place, will incorporate a company for the manufacture of woolen yarns and hosiery and erect a plant in this city.

*Connecticut, Montville. Percy L. Waterman, superintendent of the French River Textile Company, Mechanicsville, Conn., is at the head of the newly incorporated Alpha Mills Company. The new concern will manufacture worsteds.

*Massachusetts, Athol. The new worsted plant which we reported as being started by S. G. Hall is still in preparation. Worsted men's wear will be the product.

*Massachusetts, Lowell. The new carpet concern to be started in Lowell and which we reported Geo. A. Lyon and C. W. Clark as connected with, will be known as the Lyon Carpet Company. F. P. Marble has been elected president, Geo. A. Lyon, treasurer and buyer, and C. W. Clark, superintendent. 25 looms, which have been ordered, will be run on carpets and rugs and it is expected that operations will begin about March 1. The concern will employ 60 hands. The Dana Machine Shop building in West Adams St., containing about 18,000 feet of floor space, has been purchased and is being repaired. All yarns used will be bought.

Mexico, Oxaca, San Juan. A woolen mill will be erected at this place. The company has secured a concession for the use of water from the Ardilla River to the extent of 1,000 h. p. It is reported that construction work will begin at once.

New Jersey, Gloucester City. E. Schmidt has leased space in the mill of Fries-Harley Co. and will install five looms for the manufacture of Brussels carpets.

New York, Millbrook. The Royalton Woolen Company has been incorporated with capital stock of $50,000. It is understood that a plant will be started at this place. Chas. L. Bowler, Chas. L. Bowler, Jr., and Frederick E. Amerman, 41 Worth St., N. Y., are the incorporators.

Rhode Island, Glocester. Dexter Elliot, formerly president and treasurer of the Silk Fiber Company of Mechanicsville, Conn., is starting a plant for the manufacture of shoddies and extracts. Custom carding, picking, and garnetting also will be done. The equipment will consist of 4 double shoddy cards, 2 pickers and garnetting machines. E. W. Gibson is superintendent. The plant will be operated by water power. (Glocester is not a Post Office.)

Rhode Island, Providence. James Lister, of the Centredale Worsted Mills, has purchased the building formerly occupied by the Chace Pulley Co. and it is reported that the building will be at once equipped with machinery for manufacturing colored worsted yarns. It is expected that 50 people will be employed early in January.

Enlargements and Improvements.

*Connecticut, Norwich. Construction work on the rebuilding of the Preston Woolen Company, which was partially destroyed by fire, is nearly completed, the roof being placed on the building. Work has started on a further addition to be used as a picker room.

*Connecticut, Stafford Springs. The Rhode Island Worsted Co. is installing a new 350 h. p. boiler. As previously reported, the capital stock of this company has been increased from $40,000 to $160,000 and an enlargement of the plant is contemplated.

Maine, Foxcroft. Two new boilers have been Company has shut down for two weeks during which time new machinery will be put in and extensive repairs made. The company has a capital of $100,000 and operates 4 sets and 25 looms on woven felts and similar goods. Samuel Williams is pres., Frank Paige, treas., and Richard Howarth, supt.

Maine, Foxcroft. The new boilers have been installed in the plant of Mayo & Son, Inc. The heating plant has also been overhauled and plans are completed for a busy winter. Ladies' dress goods are manufactured on 6 sets and 42 broad looms.

*Maine, Sanford. Spinning machinery (Bradford system) will be installed in the 2 story, 60 by 134 foot addition to the Goodall Worsted Company. The new boiler which we reported would be installed in the Maine Alpaca Company, has been ordered and will be installed as early as possible.

*Massachusetts, Athol. Work has started on reestablishing the satin and blanket mill operated by W. H. Kauffman, and partially destroyed by fire early in the month. It is estimated that repairs will be completed and new machinery installed by February 1. New carding and spinning machinery will be needed.

*Massachusetts, Hubbardston. The Hygienic Blanket Company, which was badly wrecked by the explosion of a boiler, will make repairs as soon as possible. Insurance to the amount of $10,000 was carried on the boiler. Coarse blankets and linings are the products, being manufactured on 3 sets and 15 looms. Jas. E. McWilliams is manager and buyer.

Massachusetts, Lawrence. Preparations are being made to erect a new dye house for the Wood Worsted Mills.

*Massachusetts, Lawrence. The new dye house for the Washington Mills has been completed and the machinery will be installed as rapidly as possible.

*Massachusetts, Lowell. The 5-story addition to the plant of the U. S. Bunting Company is practically completed and machinery is being installed in some parts.

Massachusetts, Monson. The building known as Ellis Mill No. 3 is to be torn down and the machinery now operated will be moved to the plant at Stafford, Conn. A. D. Ellis advises us that construction work will begin next spring on the new mill to be erected on the site. It is expected that the new building will be completed by fall and 6 sets of cards and 36 looms will be installed for the manufacture of kerseys, broad cloths and billiard cloths. The new building will be of the latest construction and will be operated by both water and steam power.

*Massachusetts, Monson. The Ellis Mill, No. 2, will add one set of woolen cards, making a 5-set mill.

Massachusetts, Uxbridge. A 200 h. p. engine will be installed in the Davis & Brown Woolen Company's branch plant in this town. The foundation for the engine has been completed. Cotton warp meltons are manufactured on 5 sets and 64 narrow looms.

Michigan, Clinton. The Clinton Woolen Mfg. Co. has installed two new boilers and is adding a water softening plant to prepare water for the boilers and for finishing. This company has a capital of $100,000 and operates 11 sets and 52 looms on cassimeres and uniform goods. W. S. Kimbal is secretary and buyer.

New Hampshire, Ashland. The Squam Lake Woolen Mills are closed while new boilers are being installed and other improvements made.

*New York, Clark's Mills. The additions to the Hind & Harrison Plush Co. are nearly completed and spinning and twisting machinery equipment is being installed. 10,000 spinning spindles and 5,000 twisting spindles comprise the new equipment.

New York, New York. J. Rosenblatt, 242 Canal St., has purchased the machinery of the New Jersey Shawl Co., which operated the plant at 93 River St., Paterson, N. J., and will remove it to New York as soon as suitable quarters are found. It is the intention of Mr. Rosenblatt to combine his present equipment of 6 looms with the equipment of 9 looms of the N. J. Shawl Co., in the new plant.

*North Carolina, Kernersville. The new machinery added to the Crews Mfg. Company comprises 4 new looms and 1 set of woolen cards. This addition is necessary on account of increased business on their brand of wool blankets.

Pennsylvania, Chester. The Emmott Worsted Spinning Company, manufacturers of fine and medium yarns, is building a small frame building covered with iron, in order to provide additional space. No new machinery will be installed.

*Pennsylvania, Lenni. Improvements which were reported as being made at the local plant of the Victoria Plush Mills, include the erection of a large dye house 50 by 100 ft. All the improvements are progressing.

Pennsylvania, Philadelphia. The Prudential Worsted Mills, incorporated in June, has added a number of new looms owing to increased business.

*Rhode Island, Pawtucket. The work of installing machinery in the new weave shed erected for D. Goff & Sons is progressing. Construction work on the addition is practically completed.

*Rhode Island, Woonsocket. The Perseverance Worsted Company has decided not to build the proposed addition to their weaving department until spring. Plans have been completed for a building, 3 stories high, with space for 120 looms

Wisconsin, Racine. The capital stock of the Racine Woolen Mills has been increased from $100,000 to $130,000. At the present time it is not known whether the plant will be enlarged. The branch mill at Peru, Ind., was recently discontinued and some of the machinery moved to Racine. Shawls and woolens are manufactured on 5 sets and 29 looms. Sands M. Hart is treasurer, manager and buyer.

SILK.

New Mills.

New Jersey, Paterson. The Elwood Ribbon Mfg. Company is the name of a new concern locating in the Strange Mills. Miss Orr, formerly superintendent of the Upland Silk Company, is interested in the project.

*New Jersey, Paterson. The United Ribbon Co., reported as having plans prepared for a mill to be erected in this city, has secured a site between Keene and Franklin Sts., and it is stated will shortly begin construction work on a building to cost $60,000.

*New Jersey, Paterson. The Petersburg Silk Co. has been incorporated with capital stock of $250,000. Thos. Bachofen, 285 Summer St., is in charge, and associated with him are Henry B. Reynolds (Scranton), John W. Dun (New York) and Chas. F. Davis (New York). It is planned to purchase the Petersburg Silk Mills at Scranton, a branch of Reiling, David & Schoen, with main plant at West Hoboken. Failing in this, a new plant will probably be installed in Paterson.

New Jersey, West Hoboken. Arthur J. Geroux, formerly superintendent for Givernaud Bros., is starting a plant at 3050 Hudson Blvd. for the manufacture of handkerchiefs, millinery, trimmings and dress goods. Machinery is being installed now and operations will commence as soon as possible.

*Pennsylvania, York. It is stated that S. A. Souter, who was reported as about to start a new silk mill, has leased space in the building owned by the York Engineering Company. Mr. Souter was formerly general manager of the Monarch Silk Mills and is experienced in the manufacture of silk fabrics.

Enlargements and Improvements.

New Jersey, Paterson. The Henbert Silk Company has purchased the plant of the National Silk Company, located in the Essex Mill, and will move it after January 1 to the new Barnet Mill. The plant consists of 32 broad silk looms and complimentary machinery, and may later be combined with their present equipment of 113 looms.

New Jersey, Paterson. The Expert Silk Company, manufacturers of broad silks on 20 looms, have leased the space which will be vacated by the Harmony Silk Company and they will add additional machinery. Geo. and David Kaufman are the proprietors.

*New Jersey, Paterson. Fred Schofield, who now occupies two floors in the Gordon Mill, will move before March 1 to the Strange Mill on Beach St. As previously reported, Mr. Schofield recently purchased the plant of the Lionton Weaving Co. and will combine it with his original plant.

Pennsylvania, Wilkesbarre. The Wilkesbarre Silk Co. have decided to erect a 4-story addition in the spring. Plans for the proposed building have not been prepared. 50,000 spindles are operated on thrown silks. Jos. Wadsworth is pres.; Geo. A. Post (Paterson, N. J.), treas., and Carl Fernbach is supt. and buyer.

Mills Shutting Down.

Connecticut South Coventry. The engine used in the plant of the Washburn Silk Company has been sold and the plant is closed indefinitely. The company has a capital stock of $16,000.

MISCELLANEOUS.

Louisiana, New Orleans. The Kohlmann, Moss & Cotton Felt Mfg. Company has been granted a charter with a capital of $15,000. Cotton felt and batting will be the product. Lewis Kohlmann, president of the Kohlmann Cotton Mill & Mfg. Company, is at the head of the project.

Massachusetts, Everett. Construction work is going forward on the new mill being erected for the Shultz-Goodwin Company, Inc., of 31 Lincoln St., Boston. When completed, the plants at Lowell and at 16 Columbia St., Boston, will be consolidated and the equipment enlarged. Suspender webs, underwear trimmings, bindings and similar goods are manufactured from 20s to 80s yarns. Chas. Goodwin is president, E. D. Lunt, secretary, and F. W. A. Shultz (Boston), treasurer. The company has a capital of $80,000.

*Massachusetts, Fitchburg. As reported in September, the Houghton Web Co. has secured the plant formerly occupied by the Fitchburg Steel Ball Co. on Lunenburg St. and is now installing a number of looms for the manufacture of webbing goods. The Houghton Elastic Web Co. has a capital stock of $50,000, of which $20,000 has been paid in. I. S. Houghton is pres. and mgr., and W. C. Hayes is treas. and sec.

Massachusetts, Stoughton. The Chelsea Braiding Company, operating 4 looms and 50 braiders at Chelsea, Mass., has bought the Wales French factory at this place and will establish a branch plant here. If the building is filled with machinery, employment will be given to about 75 hands.

*New Hampshire, Meredith. As previously reported, the Atlas Linen Company has been reorganized under the name of the Atlas Linen Corporation. Operations were resumed December 9 under the management of the new organization, which has the following officers: Thos. Allen (Boston), is president, Lewis McCarthy (Boston), treasurer, and B. S. Clarke, general superintendent and buyer. Five cards, 1,200 spindles and 36 looms are operated on toweling. The product is bleached and finished at the plant and sold through W. H. Burgess & Company, N. Y.

New Jersey, Paterson. The Bias Waterproofing Fabric Company has been granted a charter with a capital stock of $300,000. Preparations will be made to equip a plant and it is expected that operations will commence about June 1, 1908. The principal office is at 14 Harrison St., Paterson. Albert Herzog (Brooklyn) is president, Mendel De Bor (New York) and Henry Bircher (Paterson) are directors.

New Jersey, Paterson. William Thompson, proprietor of the Globe Dye Works of Little Falls, N. J., reported in October as purchasing a lot on 6th Ave. has completed plans for a new dye house. The structure will be of brick construction, two

stories high, and will be erected at a cost of about $5,000.

New Mexico, Albuquerque. The Albuquerque Wool Scouring Mill is reported to have purchased the plant of the Tucumcarr (N. M.) Wool Scouring Mill and machinery is being moved to this city to enlarge the plant of the local company. It is understood that plans are being prepared for a large new building on which construction work will begin in March. James Wilkinson is interested in the project.

New York, Brooklyn. The Manhattan Cordage Machine Company are just getting their plant ready for operation and expect to begin the manufacture of sisal rope within a few days. The machines used in the plant are of their own construction and are patented by them. The company has a capital of $100,000. John M. Riener is treasurer and Peter Hetzel, superintendent.

New York, New York. Freydberg Bros., manufacturers of skirt bindings and trimmings at 149 Wooster St., have taken larger quarters at 44 W. 18th St. The space formerly occupied by them has been leased by Rubin Bros., who will install additional equipment.

New York, New York. Kalfus & Co., trimming and braid manufacturers of 44-48 W. Houston St. will move before February 1 to 42-44 E. Houston St. where opportunity for an increase will be had.

Pennsylvania, Philadelphia. On account of increased business, D. F. Waters, proprietor of the Germantown Dye Works, has erected a brick addition, 90 by 45 feet and 1 story high. 20 new dyeing machines have been installed. All kinds of yarn and hosiery are dyed.

New York, Waterford. De Freest-Stover Mfg. Corporation, manufacturers of men's flat cotton underwear and trimmings on 30 knitting machines and 50 sewing machines, have recently installed special machinery for the manufacture of wash rags and knitted specialties. Business in the new lines is very brisk. The corporation has also appointed as selling agent Silas Yerkes, 256 Church St., New York City. The plant is up-to-date in every respect and equipped with electric power, dyeing, bleaching and winding departments.

Ohio, Cleveland. The Mentor Knitting Mills Company of Mentor, Ohio, are operating a finishing plant of 50 sewing machines in this city. E. O. Boli, who has been identified with the Mentor Knitting Mills Company for the past two years as superintendent, has been elected secretary and treasurer. The company has a capital of $50,000 and operates 100 knitting machines and 150 sewing machines on underwear.

*Pennsylvania, Philadelphia. It is reported that Fred Kaser & Co., 3562 Witte St., will install new knitting machines. Six machines were added in November. Men's and women's 176-needle seamless cotton hosiery is the product.

*Pennsylvania, Philadelphia. Estimates will be invited within a week by Messrs. Sauer & Hahn for the new mill of the Standard Hosiery Co., Randolph St., above Thompson. The building will be four stories high, of concrete and slow burning construction, L shaped, 150 by 50 feet, and will cost $100,000.

*Pennsylvania, Reading. The Berkshire Knitting Mills expect to start manufacturing in their new mill by February 15. As previously reported, machinery equipment is being installed. Ladies' full-fashioned hosiery will be made from 15/1s combed peeler, 2/50s and 20/70s lisle. Ferdinand Thun is pres., and Gustaf Oberlaender, treas. and buyer. The product is sold through Harrington & Waring.

*Pennsylvania, Reading. The new mill being erected for the Nolde & Horst Co. is practically completed. The building is a brick structure, 4 stories high with basement, and 380 by 65 feet with wing, 100 by 74 feet. The equipment will be installed, it is reported, so that the plant will be partially in operation by January 1. Jacob Nolde is president, and Geo. D. Horst, treasurer and buyer.

Pennsylvania, Philadelphia. Owing to the quantity of orders on hand, the Westmoreland Dye Works, 1915 East Westmoreland St. are running overtime. They are considering the purchase of the adjoining property in order to build a larger addition to their plant.

Pennsylvania, Reading. The Reading Dyeing Co. has started construction work on an enlargement to their plant. The addition will be used for dyeing and printing yarns and hosiery. Max Thus is president, superintendent and buyer.

Rhode Island, Pawtucket. G. A. Lowry advises us that the Lowry Fabric Mfg. Co., which was incorporated recently under Maine laws with capital of $500,000, will manufacture rugs, mattings and carpets from grass and straw. The company is not ready to contract for machinery at this time, but expects to get at this matter shortly as manufacturing will commence during 1908. Nathan W. Littlefield is president and Dr. Chas. A. Stearns is treasurer, superintendent and buyer. 4/4s cotton yarn will be used in large quantities.

Rhode Island, Woonsocket. New winding and spooling machinery has been added by the Woonsocket Dyeing & Bleaching Co.

FAILURES AND SUSPENSIONS.

Connecticut, Mechanicsville. Dexter Elliot has been appointed receiver of the Silk Fiber Company. The company is capitalized at $10,000 and manufactures woolen yarns and wool-spun cotton yarns. 6 sets of cards are operated.

Massachusetts, Medford. The Crown Dyeing Company has been petitioned into bankruptcy. Cotton fabrics are printed, dyed, bleached and finished. Four printing machines are operated. Jas. F. Loyd is president and manager; and W. H. Heald is treasurer.

New York, New York. Louis Rittenberg, proprietor of the Saxton's River Woolen Mills, Saxton's River, Vt., with office at 817 Broadway, has filed a petition in voluntary bankruptcy. The liabilities are shown to be $103,869, of which $63,469

are unsecured. The assets are placed at $153,444. The Saxton's River Woolen Mills operate 6 sets and 28 broad looms on cassimeres and overcoatings. Henry Melville was appointed receiver with instructions to operate the property for 20 days.

Rhode Island, Providence. Creditors have filed an involuntary petition in bankruptcy against the Union Winding Co. It is stated that the liabilities amount to $60,000. Assets not given. The Ballou Yarn Co., the Thornton Machinery Co., and Arnold, Hoffman & Co., are among the creditors. The Union Winding Co. deals in spool and tube yarns and threads, also glazed yarns. H. L. Dinkelspiel is president and general manager; S. J. Goldsmith, treasurer, and J. L. Dinkelspiel, vice president. It is expected the difficulties will be settled without discontinuing the business.

FIRES.

Missouri, Sedalia. The plant of the Sedalia Woolen Mills Company, including storehouse, has been destroyed by fire, causing a loss estimated at $55,000, with $35,000 insurance. The company had a capital stock of $30,000 and operated 2 sets and 6 looms on cassimeres, flannels and dress goods. M. D. Moore is pres.; T. Elmer Savage, sec. and treas., and F. F. Hugerman, mgr. and buyer. It is understood that the plant will be rebuilt as soon as possible.

New Hampshire, Salem. J. W. Wheeler & Sons Mill has been destroyed by fire with a loss estimated at from $20,000 to $40,000, covered by insurance. Woolen yarns and blankets are manufactured on 4 sets and 22 looms. The plant undoubtedly will be rebuilt immediately.

New York, Waterford. The plant of the Harmony Knitting Mill has been destroyed by fire; loss estimated at $150,000; partly covered by insurance. The company was capitalized at $60,000 and operated 8 sets; 50 knitting and 100 sewing machines on woolen and camel's hair underwear.

FACTS AND GOSSIP.

Alabama, Eufaula. A number of prominent citizens are interested in establishing a knitting mill and it is reported contemplate opening books for subscription for a $50,000 company.

*Alabama, Huntsville. It is reported that plans are practically completed for the $250,000 cotton mill which has been projected for some time; also that application will be made for a charter within a few days.

Alabama, Samantha. It is reported that a new rope and yarn mill is contemplated for this place.

*Arkansas, Little Rock. Gov. X. O. Pindall is going forward with his project to establish a cotton bagging plant at the State Farm. It is estimated that the cost of the factory will be $5,000.

Canada, Quebec, Sherbrooke. Charter has been granted the Magog Woolen Mills, Ltd., with a capital stock of $49,000. It is understood that the new company will take over the plant of the Magog Woolen Mills, A. P. Lomas, prop.

Connecticut, Norwich. It is stated that a hosiery manufacturer is negotiating for a lease of the building vacated by the Westerly Electric Light Co. The names of the interested parties cannot be learned.

*Illinois, Chicago. The report that the Schwartz Knitting Works, which was declared bankrupt in September and plant sold, is continuing business, is correct. The new plant is at 324 Washington Blvd., where orders are taken and goods delivered. Reorganization of the company has not been completed, however, and complete information cannot be received before January 1.

Maine, Old Town. The Old Town Woolen Company is running on a 24-hour schedule on account of the large demand for their goods. This company has a capital of $200,000 and operates 9 sets and 64 broad looms on cassimeres and overcoatings. M. S. Holway is pres., Herbert Gray, treas. and buyer, and F. W. Phelps, supt. The product is sold through Greeley, Cushman & Record.

Maryland, North East. It seems very likely that a woolen manufacturing plant will be started in the old McCullough iron plant. The buildings are being put in order. No definite information has been given out.

Massachusetts, Boston. Edgar J. Lowenstein, 88 Broad St., formerly connected with the Champlain Silk Mills, Whitehall, N. Y., is looking for about 50,000 square feet of space suitable for the manufacture of spun silk.

Massachusetts, Clinton. The Clinton Wire Cloth Co. proposes to install a new 500 h. p. engine within a few weeks. At present electric power is purchased from the Clinton Electric Lighting Co.

Massachusetts, Concord Junction. A report that Gen. William F. Draper has bought a tract of 67 acres of land at this place has given rise to rumors which are as yet unconfirmed, relative to the establishment of a textile machinery plant. The American Woolen Co. was the original purchaser of the tract that is now reported sold to General Draper.

Massachusetts, Great Barrington. It is reported that the building owned by Parley A. Russell is being put into condition for the installation of woolen machinery. In March it was reported that New York parties were corresponding with the Business Men's Club regarding the establishment of a $20,000 shoddy plant in the mill.

*Massachusetts, Lowell. The Merrimac Woolen Co. was ready to start operations Monday morning after the recent shut-down, but owing to dissatisfaction among the employes regarding the quality of work, the plant did not start.

*Massachusetts, North Adams. The receivers of the Arnold Print Works have made a preliminary report showing that the total liabilities are $8,616,071; and quick assets, $11,023,308. The total assets are placed at $15,039,417. The receivers state that the interest of the creditors will be best conserved by continuing the business, which they propose to do. The court has authorized the re-

ceivers to borrow immediately $100,000 on receivers' certificates, for the purpose of meeting expenses. This is in addition to $100,000 which the receivers were authorized to borrow November 13.

*Massachusetts, North Brookfield. Agitation for the establishment of a plant here by the Oxford Linen Company has been started, as the Indian Orchard Flax Company's plant, which was recently sold to H. P. Chapin, is looked upon as a good home for the industry.

*Massachusetts, Spencer. Indications are that the Priscilla Woolen Co. will soon be running its full equipment in both plants shortly. A line of new samples has been gotten out and a number of orders have been received.

Massachusetts, Westboro. It is understood that the Westboro Weaving Co. contemplates leasing all of the building of the Hunt Leather Goods Co. At present a part of the building is leased and a number of looms are being operated. The Westboro Weaving Co. has shut down for a few days for stock taking.

Mexico, Jalisco, Lagos. It is rumored that the La Victoria Cotton Mills will be taken over by an American company.

Minnesota, Faribault. A firm interested in the manufacture of linen goods is reported as considering the advisability of locating a plant at this place. Nothing definite has been decided upon, and it is not likely that the project will materialize, at least for some months.

*Minnesota, Rochester. The projected industry of which we reported John A. Willingmyre as the head, may turn out to be a worsted yarn plant. Final plans have not been made.

New Jersey, Jersey City. The W. S. Belding Company has been incorporated with a capital stock of $50,000 and it is expected that a plant for the manufacture of silk and cotton goods will be started. J. R. Emery (Montclair, N. J.); W. H. Griffin (Red Bank, N. J.); and L. H. Hall (New Caanan, Conn.), are the incorporators.

*New Jersey, Little Falls. The Paterson Dye Works, which we reported in October as organizing with a capital stock of $10,000, has bought the plant of the Globe Dye Works and is continuing the business of dyeing and bleaching cotton yarn and piece goods. Geo. McLean is pres. and supt., and Frank Dwyer is sec., treas. and buyer. William Thompson, the former proprietor of the Globe Dye Works, is erecting a new plant in Paterson.

*New Jersey, Paterson. The Seaton Company, reported last week incorporated with a capital of $100,000, will take over the branch plant reported as being started in Passaic a few weeks ago. The H. H. Seaton Company of Paterson has not been affected by the above change.

New Jersey, Paterson. The equipment of the New Jersey Shawl Co., consisting of 9 looms, has been purchased by J. Rosenblatt and will be moved to New York.

*New Jersey, Paterson. A. Brokman has purchased an interest in the firm of Collins & Kaltz, who started a plant in October at 109 Spruce St. Mr. Kaltz has withdrawn and the concern will be known in the future as Brokman & Collins.

*New Jersey, Riverside. It is reported that Wm. F. Taubel, hosiery manufacturer, with mills at Shamokin, Philadelphia and other places, is negotiating for the purchase of the hosiery and underwear plant of the Beverly Hosiery Mills, Turner Birkhead, proprietor, which is in financial difficulties. The liabilities of the Beverly Hosiery Co. are $50,000 and assets $43,000.

*New Jersey, Trenton. There seems to be good foundation for the report that the property recently vacated by the John Williams Mfg. Co. will be started up shortly. While the names of interested parties cannot be learned at present, it is stated that New York parties interested in woolen goods will take over the property.

New York, Amsterdam. Van Brocklin & Stover Company, manufacturers of knit underwear, are looking about for a suitable site for a branch plant. The branch formerly operated by them in the Liddle Mill has been discontinued to make room for a new company.

New York, Brooklyn. The National Knitting Mills, Samuel Ash, proprietor, have been changed to the International Knitting Mills in order to avoid confusion with the National Knitting Mills of this place, operated by M. Simon.

New York, Brooklyn. The Rodney Knitting Co. has discontinued its plant at this place and it is reported has started a new plant at Hamilton, N. Y.

New York, Brooklyn. The Wm. Teschemacher Company has been chartered with a capital stock of $100,000. The skein silk, natural and artificial, and mercerized cotton dyeing plant operated under the firm name of Wm. Teschemacher at 99-107 Raymond Street, will be taken over by the new company. Carl Teschemacher is president and Bernard Renthrop is treasurer and buyer.

New York, Newburgh. Labor difficulties at the Lackey Mfg. Co., which began last April, have been settled and beginning Jan 1 the mill will be operated on 3 shifts of 8 hours each. Bobbinettes and similar lace goods are manufactured, bleached, dyed and finished. Geo. E. Lackey is pres., Thos. J. Diamond, treas. and buyer, and W. J. Herlihy, supt.

New York, New York. The Ringheim-Schlichten Ramie Mfg. Company has been changed to the Schlichten Ramie Company. The capital stock is $250,000 as formerly. G. Wm. Schlichten is president and treasurer. This company's factory is located in Germany with main office at 473 Broome St., New York City. Fifty knitting machines are operated on flat and cotton underwear and full fashioned hosiery, manufactured from ramie.

New York, New York. A. Kopolsky is manufacturing ladies' and men's sweaters, stockings and leggins on 4 knitting machines at 54 E. Third St. He is buying 2/15s to 3/15s wool and worsted yarns.

Personals.

Ernest Lovering, for a number of years agent of the Lyman Mills, Holyoke, Mass., has been elected treasurer of the Dwight Mfg. Company, Chicopee, Mass., to succeed Edwin Farnham Greene who has been elected treasurer of the Pacific Mills.

Louis E. Barnes, agent of the Pemberton Mills, Lawrence, Mass., and also the Methuen Company of Methuen, Mass., has announced his resignation, to take effect June 1, 1908. Mr. Barnes has been at the head of these two corporations for the past ten years, succeeding F. E. Clark.

E. E. Bartlett, superintendent of the Parker Mills, Warren, R. I., accepted the position about a year ago. Since Mr. Bartlett took the management of this mill there have been pleasant relations between the employes and the employer, with the result that a better quantity and quality of goods are turned out. The employes at the mill seem to be perfectly satisfied and a good feeling exists among the hands employed.

G. F. Howell has accepted the position as overseer of spinning for the Golden Belt Mills, Durham, N. C. He was formerly employed at Whitmires, S. C. W. D. Cooksey of the Aetna Mills, Union, S. C., succeeds Mr. Howell at Whitmires, S. C.

J. A. Adams has accepted the position as overseer of carding at the No. 2 Mill of the Merrimack Mfg. Company, Huntsville, Ala. He was formerly employed at the Cedartown Cotton & Export Company.

W. M. Short, superintendent of the Buck Mfg. Company, Crouse, N. C., is now overseer of carding at the new Gaston Mills, Cherryville, N. C.

D. C. Robinson, for the past 11 years overseer of carding at the Spray Cotton Mills, Spray, N. C., has accepted a position as overseer of carding and spinning at the Paola Mills, Statesville, N. C.

A. L. Ellis has accepted a position as overseer of spinning at the Jackson Company, Iva, S. C. He was formerly employed at the Toxaway Mills, Anderson, S. C.

W. A. Duke has accepted a position as overseer of carding at the new mill at Mayesworth, N. C. He was formerly employed at the Daniel Mill, Lincolnton, N. C.

T. P. Gray has accepted a position as overseer of carding at Alexander City, Ala. He was formerly employed at Columbia, S. C. He succeeds John H. Anderson.

J. R. Menzies has accepted the position as overseer of carding at the Intervale Mills Corporation, Quinebaug, Conn. He was formerly employed at Plainville, Conn.

W. J. Grant from Lindale, Ga., has accepted a position as overseer of weaving at the Indian Head Mills, Cordova, Ala.

I. B. Covington, superintendent for the Hanover and Edgemere Mills, Concord, N. C., has accepted the superintendency of the Mt. Holly Cotton Mills, Mt. Holly, N. C.

Thos. Williams, formerly of England, who is considered an expert in the worsted business and who started the worsted spinning department in the mill at Derby, Pa., owned by Geo. Grayson, is now general manager of the Hope Mills Company, Louisville, Ky. This concern manufactures worsted yarns.

John McNab, who is well known as an expert at installing dyeing machinery, has taken a permanent position as boss dyer and finisher with the Knoxville Woolen Mills, Knoxville, Tenn.

John Stere has accepted the position as overseer of spinning at the Williamsville Mfg. Company, Williamsville, Killingly, Conn. He was formerly employed at Attawaugan, Conn.

Abner J. Sanburn, overseer of weaving at the No. 3 Mill of the Amoskeag Mfg. Co., Manchester, N. H., has severed his connection with that company.

Ernest Anderson, formerly designer at the Scotia Worsted Mills, Woonsocket, R. I., has been promoted to the position as superintendent to fill the position made vacant by James Ridyard.

Chas. E. Priest has been appointed superintendent of the Bourne Mills, Fall River, Mass., to take the position caused by the promotion of Mr. Delano to treasurership.

Lewis A. Anderson has severed his connection with the River Spinning Company, Woonsocket, R. I. He has held the position as superintendent and agent for the past four and one-half years. Byron L. Waterman, secretary and treasurer of the company, is acting as superintendent and agent.

Harry Spurr, who recently accepted a position as overseer of drawing at Trenton, N. J., has been engaged by the Main Spinning Company, Skowhegan, Me., in a similar position.

Frank E. Richmond was appointed treasurer of the Crompton Company at a meeting held in Providence, November 29. He fills the position caused by the death of his father, the late Howard Richmond, who died a few weeks ago. He is a young man who is thoroughly familiar with the work in the company's plant and takes the position at about the same age that his father engaged with them some thirty years ago.

E. R. Johnson has severed his connection with the Carleton Woolen Mills, Sangerville, Me., as overseer of dyeing and accepted a similar one at Pittsfield, Mass.

Harry Howard, overseer of carding at the Hargraves No. 2 Mill has resigned and accepted a similar position at Cohoes, N. Y.

Geo. Parkinson, overseer of worsted drawing for the Edward T. Steel & Company's mill at Bristol, Pa., has severed his connection after ten years of service with this company.

Wm. T. Joyce, who recently resigned a position as assistant superintendent at the Clyde Print Works, Riverpoint, R. I., has accepted a position as superintendent of the Southbridge Print Works, Southbridge, Mass.

W. L. Lang, for many years agent of the Brookside Mills, Knoxville, Tenn., has severed his connection with that company.

James A. Burke has been appointed agent of the Lyman Mills, Holyoke, Mass. Mr. Burke has held the position as superintendent for a number of years for this same company.

J. D. Roseman, for some years superintendent of the Glenn Raven Mills, Burlington, N. C., is now general manager of the Bala Mills, Concord, N. C., succeeding J. H. McDowell.

W. M. Abernathy has accepted the position as overseer of carding at the Bessemer City Cotton Mills, Bessemer City, N. C. He was formerly employed as night superintendent at the McAddenville Mills, McAddenville, N. C.

Willis Johnson for some years assistant superintendent of the Unity Cotton Mills, La Grange, Ga., has been promoted to the position as superintendent, succeeding Geo. W. Murphy, who has resigned.

Geo. W. Murphy, superintendent of the Unity Cotton Mills, La Grange, Ga., has accepted a position as superintendent at West Point, Ga.

W. D. Ingram has accepted a position as overseer of weaving at the Poulan Cotton Mills, Poulan, Ga.

M. M. Lindsay has accepted a position as overseer of carding at the Cliffside Mills, Cliffside, N. C. He was formerly employed at the Gray Mfg. Company, Gastonia, N. C., in a similar position.

Luther Brown, who has held the position as assistant superintendent for the Cabarrus Mills, Concord, N. C., has been promoted to the position as superintendent. W. L. Robinson, who has been general superintendent of these mills, will devote his time to the Cannon Mills.

J. Purdon has accepted a position as overseer of dyeing at the Clinton Woolen Mfg. Company, Clinton, Mich.

Varnum T. Barber, formerly superintendent of the Slater Cotton Company, Pawtucket, R. I., and who accepted a position as superintendent of the Conanicut Mills during the illness of the late C. E. Lindsay, has been appointed permanent superintendent.

Daniel L. Morisey, overseer of spinning at the Warren Mfg. Company, Warren, R. I., has severed his connection with that company.

W. B. Brutton has accepted the position as superintendent of the Gibson Mfg. Company, Concord, N. C. He was formerly employed as superintendent of the Odell Mfg. Company of the same city.

Harry Mabrey, overseer of weaving at the Brown Mills, Concord, N. C., has severed his connection with that company.

John H. Anderson has accepted a position as overseer of carding at the Indian Head Mills, Cordova, Ala. He was formerly employed at the Bibb Mfg. Company, Macon, Ga.

E. C. Connor has accepted the position as overseer of carding in the Swift Mills, Elberton, Ga. He comes from Anderson, S. C.

W. F. Davis has accepted the position as second hand in the fancy weaving department of the Arkwright Mills, Spartansburg, S. C. He was formerly employed at the Victor Mills, Greers, S. C.

C. D. Maigatter has accepted a position as overseer of weaving at the No. 1 Mill of the Olympia Cotton Mills, Columbia, S. C.

S. C. Cain has accepted the position as overseer of carding for the Trenton Cotton Mills, Trenton, Tenn. He was formerly employed at the Central Mills, Sylacauga, Ala.

John W. Pierson, for several years superintendent of the Avondale Mills, Birmingham, Ala., has resigned and accepted a similar position with the Alabama Cotton Mills, Speigner Station, Ala.

Abner J. Sanburn, overseer of weaving in the No. 3 weaving department of the Amoskeag Corporation, Manchester, N. H., has severed his connection with that company, having been thirty-eight years in their smploy. His son, Richard W. Sanburn, succeeds him as overseer of weaving.

J. H. Hollihan has been appointed treasurer of the Narragansett Worsted Company, Washington, R. I., succeeding W. R. Smith.

Abraham Whitticar, formerly connected with the National Providence Worsted Mills, Providence, R. I., has accepted a position with the Lorraine Mills, Pawtucket, R. I.

D. A. Provost has accepted the position as boss dyer for Youngman & Hammond Woolen Mill, Hope Valley, R. I. He was formerly employed at Columbia, Mich.

Geo. Newery has accepted a position as boss dyer for the Carleton Mills, Sangerville, Me. He comes from Dedham, Mass.

Walter H. Armstrong, overseer of spinning at the Lyman Mills for the past eight years, has been promoted to the position of superintendent of this company, filling the position caused by the promotion of Jas. A. Burke, who now holds the office as agent for this company.

T. J. Sheehan has accepted the position as overseer of carding at the Worcester Woolen Company, Worcester, Mass. He was formerly employed at Seneca Falls, N. Y.

Captain Geo. G. Grant, superintendent of the Eagle Cotton Mills, Woonsocket, R. I., has severed his connection with that company after thirty-six years of valuable service. His successor as superintendent will be Michael Fenton, for twenty-five years overseer of weaving. Mr. Grant was mayor of Woonsocket some years ago.

Earl Batty, employed in the designing room at the Pawcatuck Woolen Mills, Potter Hill, R. I., has returned to his home in New York City.

Wm. Smith, for a number of years employed at Willimantic, Conn., has accepted a position as superintendent of the Pequot Mills, Montville, Conn.

Louis E. Barnes, agent of the Methuen & Pem-

berton Mills, located at Lawrence and Methuen, Mass., has severed his connection with that company and with E. E. Burnham of Lawrence, Mass., has gone into the belting and mill supply business.

Willis Ogden, overseer of finishing for the Perry Knitting Company, Perry, N. Y., has been promoted to the position as assistant superintendent for the same company.

Benjamin Knapton has accepted a position as overseer of beaming for the Arrawanna Mfg. Company, Middletown, Conn. He was formerly employed at the Adams Bros. Mfg. Company, Adams, Mass.

Edward Saunders has severed his connection with the Granite Woolen Company, West Swanzy, N. H., as overseer of spinning.

Wm. E. Wilson, formerly employed at the Perry Yarn Mills, Webster, Mass., has accepted a position as overseer of carding at the Daniels Worsted Mils, Worcester, Mass.

Chas. W. Lockwood has accepted the position as overseer of dressing for the Scotia Mills, Woonsocket, R. I. He was formerly employed at Lowell, Mass.

John R. Marjerison, overseer of spinning and drawing at the Arlington Mills, Lawrence, Mass., has severed his connection with that company. He has been in the employ of the Arlington Mills for more than twenty years, twelve years of which he was overseer of the drawing department.

Anson L. Griffin, foreman of the mule department for the Davis & Furber Machine Company, North Andover, has severed his connection after twenty-two years of service.

John Dalton has accepted the position as boss dyer for the Lippett Mills, Woonsocket, R. I., succeeding Geo. Carey.

Frank D. Bell, overseer of spinning in the Rhode Island Mills, Spray, N. C., has resigned.

Chas. L. Smart, superintendent of the Shelby Cotton Mills, Shelby, N. C., has resigned to accept a similar position with the Erwin Cotton Mills, Cooleemee, N. C.

H. J. Forsyth, superintendent of the Erwin Cotton Mills, Cooleemee, N. C., has accepted a similar position with the Wylie Mills, Chester, S. C.

W. G. Reynolds has accepted a position as overseer of spinning in the Gibson Mills, Concord, N. C., succeeding R. T. Gardner.

D. A. Holtzclaw, superintendent of the Mt. Holly Cotton Mills, Mt. Holly, N. C., has resigned to accept a position as master mechanic at Lumberton, N. C.

W. C. Quick has accepted a position as overseer of carding at McColl, S. C. He was formerly employed at the Marlboro Cotton Mills, McColl, S. C.

James T. Hill, overseer of slashing at the Hebron Mfg. Co., Dodgeville, Mass., has severed his connection with that company.

J. M. Masson has accepted the position as superintendent of the Blackington Mfg. Co., Blackington, Mass. He was formerly superintendent at the Schaghticoke Mills Co., Schaghticoke, N. Y.

H. L. Galusha has accepted a position as overseer of spinning for the Bigelow Carpet Co., Lowell, Mass., succeeding Harry Hamer.

Jacques Cadgene, a wealthy silk finisher of Paterson, N. J., died while sitting at a table in a restaurant on River St. in that city, Dec. 17. He operated a large plant at 6th Ave. and Riverside and was one of the best known manufacturers in town.

Emmett Ainley, for a number of years designer for the National & Providence Worsted Mills of the American Woolen Company, Providence, R. I., has severed his connection with that company.

John Chapdelaine, assistant foreman for eleven years with the Finlayson Flax Spinning Company North Grafton, Mass., has severed his connection with that company.

John Fagan, who has held the position as superintendent of the Blackington Woolen Mills, Blackington, Mass., has severed his connection with that company. He was formerly employed at Hinsdale, Mass.

Henry B. Massey has accepted a position as overseer of carding at the Fairfield Mills, Winnsboro, S. C. He was formerly employed at the Rodman Heath Mills, Waxhaw, N. C.

Robert Scott has been appointed superintendent of the Geo. W. Olney Woolen Company, Cherry Valley, Mass. He was formerly employed at the Hartford Woolen Company, Hartford, Vt.

W. M. Preddy has accepted a position as overseer of weaving at the Leaksville Cotton Mills, Spray, N. C. He was formerly employed at the Granby Mills, Columbia, S. C.

W. P. Campbell has accepted a position as superintendent of the Lafayette Cotton Mills, Lafayette, Ga. He was formerly employed at Fountain Inn, S. C.

W. L. Saunders has accepted a position as night superintendent at the Shelby Cotton Mills, Shelby, N. C.

A. L. Tyner has accepted the position as overseer of carding and spinning at the Eastman Cotton Mills, Eastman, Ga. He was formerly employed at Jackson, Ga.

J. A. Adams has been promoted to the position as overseer of the spinning department at the No. 1 Manetta Mills, Lando, S. C.

Grover Truslow has been promoted to the position as overseer of spinning and carding at the Manetta Mills, Lando, S. C.

D. E. West has accepted a position as superintendent of the Fountain Inn Mfg. Company Fountain Inn, S. C. He was formerly employed at the Woodside Mills and at Lafayette, Ga.

J. A Campbell has accepted a position as overseer of carding and spinning at the Lafayette Cotton Mills, Lafayette, Ga. He was formerly employed at Fountain Inn, S. C.

James Earnhardt has accepted the position as overseer of carding at the Rodman Heath Mills, Waxhaw, N. C.

Wm. Holt has accepted a position in charge of London shrinking for the Broad Brook Co., of Broad Brook, Conn. He was formerly employed at the Dunn Worsted Mills, Woonsocket, R. I.

Ralph C. Perkins has accepted the position as overseer of weaving for the Atlas Linen Company, Meredith, N. H. He was formerly employed at the Naumkeag Steam Cotton Company, Salem, Mass.

Henry G. Tietze, overseer of spinning at the Oregon City Mfg. Company, Oregon City, Ore., has severed his connection with that company.

Geo. H. Grant, superintendent of the Eagle Mills, Woonsocket, R. I., who tendered his resignation to that company recently, was presented with a magnificent gold Knights of Templars charm and a gold watch chain. The charm was set with fifteen rubies and nine diamonds and made a beautiful present, on the back of which was the following inscription: Presented to Geo. H. Grant by employes of the Eagle Mills, Dec. 19, 1907. He also received a purse of gold amounting to $70.

DEATHS.

Thos. H. Stafford, for a number of years auditor of the Sibley, John P. King, Langley, and Aken Cotton Mfg. Companies, died at his home, aged 75 years.

De Frees Critten, of the large commission house of Critten, Clift & Co., New York City, died at his home in Grymes Hill, Staten Island.

Walter M. Smith, of the firm of Smith, Hogg & Company, Boston and New York, wholesale dry goods merchants, died at his residence at Stamford, Conn. He was born in Exeter, N. H., February 13, 1837.

Geo. H. Nichols, a former representative and senator for the town of Hopkinton, R. I., died at his home at Hope Valley after a short illness. He was 74 years of age and was born in Hopkinton April 23, 1834. The greater part of his life was engaged in the cotton manufacturing industry, being employed as superintendent by Wm. R. Green & Company and by the Nicholas W. Langworthy Company in the Locustville Mill.

Dietrich Wittenerg, Sr., died at his home in Cedarburg, Wis., aged 73 years. He was born in Harlstaudt, Hanover, Germany, March 29, 1834. He was one of the founders of the Cedarburg Woolen Company and was president at the time of his death.

Origin Hall died at his home in South Willington, Conn., December 7. He was born in Stafford in 1844 and spent his early life in South Willington. At the age of 22 he accepted a position with Gardiner Hall, Jr. & Company, in which concern he was after a year's service made overseer of the winding room.

Wm. Roper, one of the largest manufacturers of athletic knit goods in New England, died at his home on West St., Needham Heights, December 17. He was prominently identified with several Scottish organizations in New England and a member of the Caledonian Club. He was born in Harvick, Scotland, May 16, 1858.

Jos. T. Owings, vice-president of the firm of John Stearns & Company, silk manufacturers, 38 Greene St., New York, N. Y., died December 16 at his home in South Norwalk, Conn., after a brief illness. He was also president of the Leeland & Hall Company and vice-president of the Susquehanna Dye Works, Williamsport, Pa.

John Horrocks, one of the leading citizens of Cohoes, N. Y., died at his home, 221 Saratoga St., December 13, after an illness covering a number of years. He was born in England in 1841 and came to this country when a young man. With his parents, he located at Cohoes, and has been a resident for over fifty years. He engaged in knit goods manufacturing and for many years conducted with his brother-in-law, Byron Van Benthuysen, the Atlantic Mills, under the firm name of Horrocks & Benthuysen.

Chas. A. Booth, pay master at the E. Frank Lewis Wool Scouring Mill, Lawrence, Mass., died at his home in that city at the age of 51 years. He was a native of Walpole, Mass., and had been employed by this company for twenty-five years. his wife and a daughter survive him.

John Balch Kelly, treasurer of the Allen Printing Company, Providence, R. I., died very suddenly at his home, 21 Barn St., on December 13. He had a sudden attack at 9 o'clock which apparently affected his heart and medical aid was futile in the attempt to save his life. Since an attack of pneumonia about two years ago, Mr. Kelly has not been in the best of health. He was in his 64th year and leaves a widow and four daughters.

Francis Dorsey, superintendent of the Geo. W. Olney Woolen Company, Cherry Valley, Mass., died at his home December 16. Mr. Dorsey has been connected with this company for a number of years, having been promoted to the position as superintendent a few years ago. He was well liked by his employers and the employes.

John E. Greenhalgh, an old and respected citizen of Pawtucket, R. I., died at his home, 237 Prairie Ave., Providence, R. I., aged 61 years. He was formerly a bleacher and dyer, having retired from active work about two years ago.

Amory Thompson Skerry died at his home, 47 Breevoort Pl., Brooklyn, N. Y., Saturday, Dec. 14, as a result of a stroke of paralysis. Mr. Skerry was the founder of the firm of A. T. Skerry & Company, which firm was formed in 1887, where he remained until 1905, when he retired from active business. Mr. Skerry was born at Oakham, Mass., 77 years ago. His education was received at North Brookfield, Mass. In the year 1848, he came to Boston and entered the employ of Gregory Tilton & Company. In 1863, he left Boston and went to the wholesale centre in New York City, where he became associated with the firm of H. B. Claflin. Mr. Skerry was a member of the N. Y. Chamber of Commerce; N. E. Society of the City of Brooklyn; and the Congregational Club of the Central Congregational Church.

M. J. Roebken of the Badger Worsted Mills died at his home in Grafton, Wis., December 10, aged 49 years.

Wm. H. Neal, a prominent woolen merchant, died at his home, 23 Sacramento St., Cambridge, Mass., December 20, after an illness of three weeks. He was born in Boston 67 years ago and after leaving school went into the woolen trade in which he became head of the firm of Neal, Morse & Company, which office he held until 1896 when he retired. Mr. Neal served in the Civil War in the Massachusetts regiment and was a member of the E. W. Kingsley Post, G. A. R.

Chas. E. Nute, a life-long resident of Boston, died at his home in Dorchester, aged 73 years. He had been many years in the woolen trade, at one time a member of the firm of Safford, Nute & Wilson, and later with the firm of Nute, Estabrook & Wilson. He retired from active life in 1895 and has been an invalid much of the time since.

Ezra Hoyle, overseer of weaving at the Goodall Worsted Company, Sanford, Me., died at his home in that town, Dec. 13, at the age of 53 years. He is survived by his wife, one son and a daughter.

Ellison Tinkham, president of the Carolina Mills Company, Carolina, R. I., died at home in Carolina, Dec. 23, of pneumonia at the age of 82 years. Mr. Tinkham was one of the best known mill men in the state. He was born in Harmony Sept. 8, 1825, and the son of Nehemiah and Alzada (Andrews) Tinkham. Some years ago he entered into the manufacturing industry in the employ of Steere & Tinkham at Harrisville, R. I. In 1868 with Franklin Metcalf, who was then a bookkeeper for Steere & Tinkham, bought the mill at Carolina, from Roland Hazard. Mr. Tinkham has held the position as president of the company ever since. The company had the distinction of never experiencing a strike among its employes. He was a director of the National Savings Bank at Westerly, R. I., and in politics he was a Republican.

John Shaw, a member of the silk manufacturing firm of Ashley & Shaw, died at his home in Hackettstown, N. J., December 19 at the age of 75 years. Mr. Shaw had lived in Hackettstown for twenty years and established a silk mill there. He was at the head of the mercantile department and designed nearly all the machinery. He had retired from active work. He leaves a wife, two daughters and a son.

Color Bleeding in Filling.

Dyes fast to fulling ought not to be affected in shade by washing or fulling and ought not to bleed. Light-colored effect threads in cotton or wool are often entirely spoiled when the dye of the rest of the material is not sufficiently fast. Two cases which have actually occurred in practice are here described as illustrations of the methods by which faults caused by insufficient fastness may often be remedied.

A dark green mode worsted cloth had white mercerized cotton and woolen effect threads. After the piece had been fulled with soap and rinsed the cotton effect threads came out yellow, while those of wool remained white. The green had been dyed by the one-bath chrome method with Alizarine Cyanine Green E and Diamond Flavine G, and the bleeding was due to the latter dye, which will not bleed on to white wool during fulling, but will on to cotton. The evil might, perhaps, have been avoided if a different yellow had been employed, say Anthracene Yellow C or BN, although yellow dyes fast to milling with white cotton are decidedly scarce. The mischief having been done, however, a remedy had to be found if possible, and it was found that boiling the goods in water removed the yellow from the cotton effect threads. This result was also attained and more quickly by giving a weak bath of permanganate of potash, followed by a short treatment with dilute bisulphite. When the permanganate and bisulphite are used, very thorough subsequent rinsing is essential.

The second case occurred with a black and white woolen mixture in which, after fulling in soap and rinsing, the threads formerly white were red, and the piece was spoiled for the time. The black had been dyed with bichromate of potash and logwood, the silver white in an acid bath with some Acid Violet. The dyer, when the bleeding during fulling was laid to his charge, asserted that the trouble arose from red shoddy redyed black having been woven into the goods as well as wool which had never had any color but black. This turned out to be right. In the redyeing of the wool the mordanting with bichromate had removed the red dye only partially and the residue bled in the fulling of the finished piece. Before redyeing shoddy it should always be stripped at least as far as a bath of carbonate of soda at 120° F. will do it. What dye, if any, is left after this treatment will not interfere with the milling. In the case we are considering two equally satisfactory cures were discovered. One was to boil the goods in a solution of Glauber's salt. The other was a short treatment in a weak peroxide of hydrogen bath.

These occurrences were by no means unfortunate, as they led up to the acquisition of some useful knowledge in the finishing of mode goods. Light-patterned goods or goods with effect threads require greater care in steam blowing than is usually vouchsafed to them, and whenever soap is used on them for any purpose it is indispensable that the soap should be of good quality, and especially that it should be quite free from unsaponified alkali. If the goods are decatized a little acetic acid should be used in the subsequent rinsing. If they are hot pressed, the press plates must not be at an unnecessarily high temperature.—Die Deutsche Faerber Zeitung.

New York, New York. The Wiertz Silk Mfg. Co. have leased the space formerly occupied by the Lionton Weaving Co. at 104 East 129th street, and may later increase their equipment.

*North Carolina, Washington. The agitation for a cotton mill, which has been going on since early summer, seems about to be realized in the form of a net and twine factory. A number of prominent business men are now interested and are looking into the cost of equipment and markets.

New Publications.

[Any work noticed under this head can be obtained through the office of this journal.]

Five Thousand Facts About Canada; The Canadian Facts Publishing Co.; with compliments of Biggar-Wilson, Limited, Toronto, Canada.

Facts are stubborn things and this little book will prove especially stubborn to those deluded people who have based their opinion of our northern neighbors on the old statement that "Canada consists of quelques arpents de neige." Canada is not only a vast area larger than the United States and with practically inexhaustible natural resources, but it is peopled by a race that is making, has made it a nation.

Every true American's heart swells with pride when he reads this record of Canada's greatness, and the best of it all is that the people living north as well as south of the imaginary line, 4,000 miles long, separating Canada and the United States, are not only all Americans, but all friends, friends so lacking in suspicion of each other that there is not a single fortress facing that long frontier. This is worth more than all the 5,000 facts about Canadian agriculture, area, banks, education, insurance, immigration, Indians' marine, mining, milling, population, railways, religions, tariff, telegraphs, temperance, wheat and water power, which are crowded into this useful little book. Divided politically for the present, perhaps forever, may Canada and the United States remain as closely united by friendship as they are united by geography,—forever.

The Woolen and Worsted Industries; by J. H. Clapham, Professor of Economics, University of Leeds, England; Methuen & Co., 36 Essex St., W. C. London.

This is a remarkable book in that it is, as the author states "the first of its kind." Why an industry as important as woolen and worsted manufacturing should have been neglected by students and writers is a curious question we shall make no attempt to answer. We simply acknowledge the fact and thank Prof. Clapham for making the first attempt to write a general account of the manufacture of wool into yarn and cloth. The subject is treated in the following order: Manufacturing processes; raw materials; industrial and commercial organization; labor; the industry outside of Great Britain; imports and exports.

The book contains much valuable information well arranged. The illustrations, although not in every case essential to an understanding of the text, are welcome and help the reader by lending variety to the study of a naturally somewhat dry subject. The author invites criticism, suggestions and additional information on the subject for other editions which we hope will be published. He has begun a work that should be continued.

Inventions, Patents and Designs; by G. Croydon Marks, M. P.; The Technical Publishing Co. Price, $1.00.

This book appears at a time when the general question of patents is attracting special attention and the public is slowly discovering the great influence of patent laws in the development of a country's industries. The author has succeeded in giving in the first chapter a very clear, concise and instructive explanation of the meaning of the word "patent." He then deals with the subject under the following heads: What is Patentable? Opposition to Patents; Surrender and Revocation of Patents; Licensing an Invention; Infringements of Patents: Working in England; Threatening Legal Proceedings; Applying for Injunction; How to Work a Patent; Designs.

The book is written primarily for the British public and deals with the subject as related to British law. This fact does not prevent it being of value to Americans interested in the patent question. Its value to us, however, is enhanced by the fact that it contains the full text of the new British Patents and Designs Acts of 1907, which went into effect on Jan. 1, 1908, and contains provisions by which a British patent may be annulled if not worked in Great Britain. By this Act Great Britain meets Germany, France and other countries that for years have built up their industries at the expense of Great Britain and the United States by requiring all patents to be worked. The new parts of the British law are shown in italics, and the author devotes a chapter to an explanation of provision regarding compulsory working of patents and its probable effect.

Cotton Finishing; by the Editors of the Dyer and Calico Printer; Heywood & Co., Ltd., 150 Holborn, London, England; 181 pages, 5 by 8. Price, $2.50.

Its scope is indicated by the following abstract of the table of contents: Fillers or weighters; stiffening and binding agents; conditioning agents; disinfectants and antiseptics; standard finishes; pattern finishes; calender finishes; special goods; lace dressing; preparation of the mixings; moiring or watering; embossing; finishing of dyed goods; defects in finished goods; analysis of finished cloths; cotton finishing machinery. The section on machinery is freely illustrated and we believe the work will prove to be a great help to cotton manufacturers.

Cotton Facts; by Alfred B. Shepperson, 15 William St., New York. Price $1.00.

We have received the December edition of this manual, which has been brought up to date and includes all of the many features that have made it such a useful hand-book in the cotton trade.

Belts and Belt Driving (Ueber Riemen und Riementriebe); by Fritz Krull; 34 pages, 6 by 9; F. A. Gunthers Zeitungsverlag, Berlin, Germany. Price 50 cents.

This booklet contains a great deal of useful information regarding belting and the transmission of power by belting, including a number of excellent illustrations. The subject is divided into the following heads: Speed of Belting; Thickness of Belts; Pulleys; Special Kinds of Belt Driving; Tension Belts; Splicing and Lacing Belts and Care of Leather Belts; Conditions Under which Belts are Used. The text is in German.

Business Literature.

Reinforced Concrete in Factory Construction; the Atlas Portland Cement Co., 30 Broad St., New York.

The attention called to the Atlas Portland Cement Co. by this book is but incidental. The subject is treated from a viewpoint which makes the volume a valuable hand book for this important system of factory construction. The text is illustrated with many excellent drawings and engravings.

The Treatment of Belts and Ropes; Cling-Surface Co., New York.

This is a neatly bound volume of 87 pages giving much information regarding the care of belts and ropes used for the transmission of power. It directs attention to the merits of Cling Surface as a belt and rope preservative. This is done by a clear explanation of the principles governing power transmission and by a statement by practical men of tests of Cling Surface under conditions that admit of no question as to the value of the indicated results.

A Brief About Hot Water; Harrison Safety Boiler Works, Philadelphia, Pa.

A folder calling attention to the advantages of heating water by exhaust for dyeing, washing and boiler purposes in textile mills. The Cochrane Open Feed Water supplies the hot water and also takes the place of a return tank, oil separator steam trap and hot well. Attention is also drawn to the Hot Process System of Water Purification.

Knitting Machinery; Stafford & Holt, Little Falls, N. Y.

In this catalogue are found illustrations and description of Stafford & Holt machines for plain rib work, bathing suits and jersey sweaters, racked or shogged stitch, flat stitch and honey-comb stitch. The line includes sleevers, ribbers, cord and facing machines, and nappers for knit and woven goods. There is also an illustrated list of machine parts.

Engines for Fan Driving; The Massachusetts Fan Co., Watertown, Mass.

An additional section of its perpetual catalogue. This section, which comprises 16 pages, includes illustrations, descriptions, dimension, and horse power tables. It brings the entire catalogue to a total of 116 pages of valuable matter relating to blowers, exhausters, heating, ventilating, drying and mechanical draft apparatus, etc.

The Utilization of Exhaust Steam in Wood Working Establishments; The Harrison Safety Boiler Works, 17th St. and Allegheny Ave., Philadelphia.

With the exception of what is said about the use of exhaust steam in dry kilns and for steaming lumber, the points brought out in this pamphlet apply to most steam plants, covering the use of the Cochrane open feed water heaters and the hot process system of water purification for keeping hard scale out of boilers, increasing the capacity of the boilers, and saving coal and boiler feed water. The folder shows an interesting layout for engine, heater, drying and heating coils and connections.

Calendars for 1908.

The Mason Machine Works, at Taunton, Mass., builders of machinery for cotton mills, have issued a decorative calendar representing a stirring scene in the Rocky Mountains, which we venture to predict will adorn the walls of many a cotton mill office during the coming year, and will be a pleasant reminder of this well-known concern.

The Grosser Knitting Machine Co., 260 West Broadway, New York.

A particularly handsome wall calendar entitled "Unmasked," and suitable for the library or office has been sent out by the above firm.

Draper & Co., Hopedale, Mass.

A large wall pad, 10 by 12 inches, with a leaf for each day of the year.

Thomas H. Ball, dealer in worsted yarns, 15 S. Third St., Philadelphia, Pa.

A very handsome large sized calendar for office use, bearing a picture entitled the "Cavalier," which is a work of art and an object lesson in history.

The Wisconsin Textile Mfg. Co., manufacturers of hosiery boards, glove and mitten forms, etc., Two Rivers, Wis.

A unique calendar in the form of a mitten has been sent out by this well known firm; it is also an excellent advertisement as it shows the material and workmanship of their products.

Stephenson & Co., dealers in worsted yarns, Philadelphia, Pa.

A daily reminder desk calendar has been sent out by this well known firm and conveying their compliments to the trade.

The Hatheway-Sheffield Co., sample books, color cards, etc., New York.

A small lithographed calendar for office use.

Thomas Wolstenholme Sons & Co., manufacturers of French and Bradford spun yarns, Philadelphia, Pa.

A large wall pad, 22 by 14 inches, with a leaf for each day of the year.

City Trust Co., Boston, Mass.

A plain, business-like calendar for office use, giving some very fine views of Boston.

Wm. Kedward Dyeing Co., dyers, bleachers and mercerizers, Philadelphia, Pa.

This well known firm are sending out to the trade a large wall calendar printed in two colors.

Phenix Insurance Co., Brooklyn, N. Y.

This well-known insurance company are sending out an attractive desk calendar and daily reminder, bound in leather, from their sprinkled risk department.

Birch Bros., The Somerville Machine Works, Somerville, Mass., have issued this year a steel engraved calendar illustrating a scene of the famous "Falls of the Rhine" and incidentally calling attention to their line of textile finishing machinery. The firm of Birch Bros. was established in 1883.

Narragansett Textile Co., manufacturers of Narragansett high grade underwear, Pawtucket, R. I., are sending out a beautiful calendar in colors after the painting by Phillip Boileau, entitled "The American Girl." It makes a very effective wall ornament.

The Whitin Machine Works, Whitinsville, Mass., builders of cotton machinery, have issued for 1908 a calendar whirh illustrates the line of machinery which they build. Several fine engravings of a card, spinning frame and loom call direct attention to their product.

Loving Cup to Evan Arthur Leigh.

About twenty of the friends of Evan Arthur Leigh of Boston gathered at the Parker House in order to tender him a surprise dinner on the occasion of his recent return from Europe. John Eccles of Taftville, Conn., presided and during the evening called upon Charles H. Fish of Dover, N. H., to address the gathering. About half way through his remarks Mr. Fish called upon four of the gentlemen present to break open a mound of flowers in the center of the table, which was found to disclose a handsome silver loving cup prepared by Tiffany & Company of New York, and which the assembled guests presented to Mr. Leigh.

The cup was designed specially for the occasion and is unique from the fact of its decorations relating exclusively to cotton manufacturing. Around the lower rim of the bowl is an embossed wreath of cotton bolls and leaves. On one out of the three panels is the inscription engraved within a wreath of English roses, "Presented to Evan Arthur Leigh as a Token of Appreciation and Esteem Dec. 6th, 1907." On the second panel are the names of the members of the party as follows, those names being inscribed within a border made up of three top flat card bends:

J. D. Aiken of Taftville, Conn.; R. Beatty of Philadelphia, Pa.; C. P. Brooks of New Bedford, Mass.; J. B. Cudlip of St. John, New Brunswick, Canada; J. Eccles of Taftville, Conn.; C. H. Fish of Dover, N. H.; S. E. Hathaway of Fall River, Mass.; D. S. Johnston of Cohoes, N. Y.; H. Lawton of Plainfield, Conn.; W. H. Loftus of Newark, N. J.; R. McArthur of Biddeford, Me.; A. B. Mole of Montreal, Canada; W. E. Parker of Lawrence, Mass.; L. Simpson of Valleyfield, Quebec, Canada; H. E. Walmsley of New Bedford, Mass.; A. T. White of Manville, R. I.; W. T. Whitehead of Montreal, Canada; C. J. H. Woodbury of Boston, Mass.

The third panel carries a complete miniature revolving flat card embossed and engraved so as to show every detail. On each handle of the cup is something symbolical of cotton manufacturing; for example, on one handle a shuttle and thread; on another, a mule spindle and cop; and on another, a flyer and spindle.

The object of having the cup designed and decorated in the manner previously described was to commemorate the inventions of Mr. Leigh's father which were very numerous and included the leading features of the revolving flat card, especially the flexible bend, also the loose boss roll, the arrangement of a central headstock for mules and many others.

In addition to those whose names have already been given, there were also present A. C. Butler, Mr. Leigh's nephew, and Richard Johnson, of John Sykes Company, Huddersfield, England.

Heating and Ventilating.

A combined heating and ventilating system of particular interest has just been installed by the Massachusetts Fan Co., Watertown, Mass., in the building recently occupied by the well known engineering firm of Stone & Webster, Boston, Mass. Upon the same shaft are mounted two fans, one serving to draw the air through the heater, and force it throughout the rooms; the other acting to exhaust foul air, and discharge it above the roof. The arrangement provides for the driving of both fans by a direct connected motor placed between them.

Graduates from the Textile Correspondence Schools.

Following is a list of the students graduating from the textile department of the International Correspondence School, New Bedford, Mass., in September, October and November:

Complete Cotton Course: George Bussy McCrackan, Mobile, Ala.

Cotton Carding and Spinning Course: Ernest Baillargeon, Lawrence, Mass.; James Ewing Bowers, Huntsville, Ala.; Floyd Whiteford Garrison, Anderson, S. C.; John L. Fuqua, West Durham, N. C.; George Harry Jones, Langley, S. C.; Walter Mercer, Fall River, Mass.; Cicero S. Pitts, Laurinburg, N. C.; George Alfred Seagrave, East Douglass, Mass.; William Shaw, Danielson, Conn.

Cotton Warp Preparation and Plain Weaving Course: John Mongeau, Burlington, Vt.; W. L. Morris, Corsicana, Texas; William Melton Tidwell, Alexander City, Ala.

Fancy Cotton Weaving: Virgil Burr Casey, Fort Mill, S. C.; Philias Comeau, Ware, Mass.; Charles Russell Harrington, North Adams, Mass.

Complete Textile Designing: Guy Almort Andrews, Millbury, Mass.; John Henry Bateman, Kensington, Phila., Pa.

Theory of Textile Designing Course: Raymond Ferdinan Arensmeyer, Bristol, Pa.; George Kirby Nicholas, Harrisville, R. I.

Cotton Designing Course: James Airey, Danville, Va.; Joseph Augusta McKeown, Crompton, R. I.

Woolen Carding and Spinning: William Turner Hawkings, Paris, Ontario, Canada; Jesse Albert McLellan, Rockford, Ill.

Woolen Warp Preparation and Weaving: Edmund Starkie Wood, Haverhill, Mass.; John Tallon Wybron, Marcellus, N. Y.

Woolen Carding, Spinning and Weaving: Wilfred Cunliffe, Coscob, Conn.; Oliver Stafford Irvine, Philadelphia, Pa.

S. J. Corey Co. Removes.

The S. J. Corey Co., dealers in dyestuffs and chemicals, are moved on January 1 from their location on Congress St. to new and more commodious offices and warehouse at 110 Broad St., Boston.

The Foster Steam Superheater.

The Power Specialty Company, 111 Broadway, New York, manufacturers of the Foster patented steam superheater, state that notwithstanding the business depression which has been experienced during the past few months, they have booked a large number of important contracts since the first of September, and that their business for 1907 shows a very gratifying increase over any previous year. Present indications in the way of renewed inquiries and resumption of negotiations temporarily suspended by reason of the conditions referred to, point to the closing of a large amount of business within the next few months. Among many contracts which have been secured since the date mentioned the following are given:

Alabama White Marble Co., 600 h. p. in Wickes boilers. Babcock & Wilcox Co., for Pensacola Navy Yard, 1600 h. p. in B. & W. boilers. United Shoe Machinery Co., 1032 h. p. in B. & W. boilers. Clark Thread Co., Newark, N. J., 2500 h. p. in Stirling boilers. American Railway Co., 838 h. p. in Heine boilers. Schlitz Brewing Co., 2000 h. p. in Edge Moor boilers. Anheuser-Busch Brewing Asso., 2000 h. p. in Heine boilers. Tonawanda Board & Paper Co., 900 h. p. in Return Tubular boilers.

Water Softening.

In 1900 the Tonawanda Iron & Steel Co. of North Tonawanda, N. Y., installed a 4,000 h. p. We-Fu-Go water softening and purifying system. Since that time it has been necessary to open the boilers only once a year for washing out and inspection. They have just placed a second order with Wm. B. Scaife & Sons Co. of Pittsburg, Pa., for an addition to their present system, to take care of increased boiler capacity of 4,000 h. p., making a total of 8,000 h. p.

Among the recent orders taken by Wm. B. Scaife & Sons Co. for We-Fu-Go and Scaife water softening and purifying systems are the following:

Saratoga Textile Co., Saratoga Springs, N. Y., 2,400 gallon per hour We-Fu-Go System; Rochester & Pittsburg Coal & Iron Co., Walston, Pa., 1,250 h. p. We-Fu-Go System (fourth order); Clearfield Bituminous Coal Corporation, Rossiter, Pa., 1,800 h. p. We-Fu-Go System; Wickwire Steel Co., Buffalo, N. Y., 4,000 h. p. We-Fu-Go System; Union Brewing Co., Sharon, Pa., 500 h. p. We-Fu-Go System; American Sheet & Tin Plate Co., Cambridge, O., 2,000 h. p. We-Fu-Go System; George J. Renner, Jr., Brewery, Youngstown, O., 500 h. p. Scaife system; People's Brewing Co., Terre Haute, Ind., 700 h. p. We-Fu-Go System.

S. C. Lowe's Birthday Celebrated.

No one would have supposed that such a thing as depression in the cotton industry was ever talked about had he been present at the Hotel Westminster on the evening of December 28, where a party of friends of Stephen C. Lowe had gathered to give him a dinner in celebration of his fiftieth birthday.

Cotton mill men from all parts of New England and Boston and New Bedford business men gathered to do him justice. In the thirty years during which he has been connected with the machinery and mill supply trade few men in the trade have built up a larger circle of acquaintances.

Since 1901 Mr. Lowe has acted as American agent for John Hetherington & Sons in addition to his large mill supply business in New Bedford.

The good time will linger long in the memories of those present, but as a more substantial remembrance Mr. Lowe was presented with a handsome silver loving cup, the presentation being made by John C. Burke of Lowell. Mrs. Lowe was not forgotten, and to her the friends presented a silver salad dish, as William Morse acting as spokesman said, "to show her that Mr. Lowe's friends did not think they had been altogether responsible for making him a good fellow." Many other presents were showered upon the fifty year young beneficiary, some quite extraordinary.

The literary exercises included an ode composed for the occasion by Charles H. Martin, while the musical selections were under the special direction of John W. Crooks. Alfred A. Hayes acted as toast master.

Among those present were William Jackson, H. G. Simonds, T. F. Glennon, A. C. Lordley, Samuel Taylor, James B. Shea, E. W. Bailey, Charles A. Bowen, George A. Ayer, John Neild, O. D. Baker, E. B. Van Tassel, John T. Morrill, James W. Hindle, William B. Hawes, John G. Nicholson, Arthur R. Sharp, W. A. McKenney, S. C. Hathaway, A. H. Broderick, J. E. Osborne, George H. Shapley, Oliver Hawes, Otis S. Cook, J. G. Porter, I. H. McAlman, Arnold Schaer, W. H. Bryant, G. E. Gale, John H. Lawrence, Charles C. Russ, C. H. Martin, R. N. Hathaway, Arthur Luce, Frederick W. Reynolds, William O. Devoll, N. W. Whipple, Z. D. Hall, Harold Creighton, W. H. Loftus, Morton Alden, Thomas Lowe, Frederick B. Lacy, David Beatty, A. O. Davidson, Isaac B. Rich, T. F. Galvin, J. A. Brainerd, Henry J. Ballou, Charles F. Murphy, H. G. Simmons, Jeremiah McCarthy.

Tapes, Braids and Ribbons.

The Wick Narrow Fabric Co., whose offices are at 728 Market St., Philadelphia, Pa., and mills in Paterson and Philadelphia, has had remarkable success in building up a large business in a comparatively short time.

They conceived the idea of the adjustable fancy hat band, "the band with hooks." It was a good thing and just what was wanted in the trade to supply the popular demand for fancy hat bands. They were not content with a knowledge that they

had a good thing, but pushed it so vigorously that these fancy hat bands are now carried in stock by almost every hatter in the country.

In building up this very widely used specialty they did not, however, neglect that branch of their business devoted to the mill and manufacturing trade, for which they make tapes, braids and all sorts of ribbons. Their "Acorn Brand" is well known.

Their experience in the hat band trade has broadened their facilities for producing novelties for the mill trade. From those manufacturers who are not familiar with their product they invite inquiries for samples and prices.

John E. Wick is the president and Walter G. Borton secretary and treasurer of the company.

Principal Brooks Resigns.

Christopher P. Brooks has resigned as Principal of the School of Textiles of the International Correspondence Schools and disposed of his interests therein, his resignation to take effect March 1. Consequently the Correspondence School of Textiles which was established by him in 1898 under the name of the American Correspondence School of Textiles and during the last nine years has been conducted from New Bedford, Mass., will shortly be removed to the Home Office of the International Correspondence Schools at Scranton, Pa. Mr. Brooks, whose attention has been closely devoted to textile education, first in charge of the Lowell and the New Bedford Textile Schools and more recently exclusively in correspondence education, will take an extended trip abroad before accepting any new position. His successor as Principal of the Correspondence School of Textiles has not yet been appointed, but probably the present Assistant Principal, Mr. C. J. Brickett, will be promoted to that position.

The Massachusetts Fan Co., Watertown, Mass., is installing a heating and ventilating system for the American Lace Co., Elyria, O., and is also introducing a similar apparatus for the prevention of condensation in the Algonquin Printing Co., Fall River, Mass.

An Interesting Publicity Campaign.

In the November issue of "Selling Magazine," Walter B. Snow, publicity engineer and formerly publicity manager of the B. F. Sturtevant Co., describes the campaign which gave such an impetus to the idea of Mechanical Draft and extended the prestige of the B. F. Sturtevant Co. in connection with it. As a well conceived and cleverly executed piece of publicity for a broad mechanical proposition it possesses great interest for those interested in machinery advertising. The article has been reprinted in leaflet form.

Making Hosiery Yarn to Sell.

The Atlanta Woolen Mills, Atlanta, Ga., manufacturers of fancy cassimeres, jeans and cotton warps, are putting out a line of cotton hosiery yarns, from 6s to 24s, in white and mixed. They solicit the patronage of manufacturers requiring up-to-date yarns.

The Gilbreth "Field System."

A complete set of instructions under which his organization is operated has been published by Frank B. Gilbreth, of New York. The "Field System" of the Gilbreth organization has been developed since the beginning of Mr. Gilbreth's work in the engineering field, being always subject to corrections, additions and any changes which his workmen from stone mason to superintendent might suggest. It has been his object to organize and instruct his forces so that work in the field, even though many miles from the central office, could be conducted under the "Field System" as accurately and effectively as contracts executed in New York.

Contracts which have been placed in Seattle, Louisiana, San Francisco, Montreal and other points, prove that this idea has been carried out to most advantageous result. Mr. Gilbreth erected the first reinforced concrete and again the first brick structure in San Francisco after the disaster.

Three other notable results of the Gilbreth organization are the towns which were built in Canton, South Carolina, Sprague's Falls, Me., and Piercefield, N. Y. In each case unimproved land was taken over and in a few months, a complete industrial town was the result. The nucleus of the Gilbreth organization is its system, and it is only by making use of certain instructions, comprehensive to the most minute detail, that work has been done and is now being done which places the Gilbreth organization among the leaders in the building industry.

The book, entitled "The Gilbreth Field System," most comprehensive in nature, and most carefully compiled, has been known to contractors for some little time, and many have desired to avail themselves of the knowledge contained therein. The contents of the book have been carefully guarded, only a limited number of copies being in print and each copy in existence being held by a member of the Gilbreth organization only. Each foreman is supplied with a copy, being required to give his note for $20 to insure its return.

Mr. Gilbreth states that in spite of such precautions, office boys have been bribed, certain pages of the book photographed, and some few foremen have taken their copies of the "Field System" away on leaving the employ of Mr. Gilbreth.

After careful consideration of the many requests for a copy of this volume, which have been made to him from time to time, Mr. Gilbreth at last decided to give the volume to the public, realizing that the publication of such of its contents as may be known can do no harm and that many of the excellent points which characterize it will undoubtedly be of advantage to the building industry as a whole.

Much of the data which it contains was prepared by men in his employ and the "Field System" presents it in terse, concise language which makes the thought clear to any employe. In this respect, its simplicity of expression has doubtless been a great factor in the success which has marked its use.

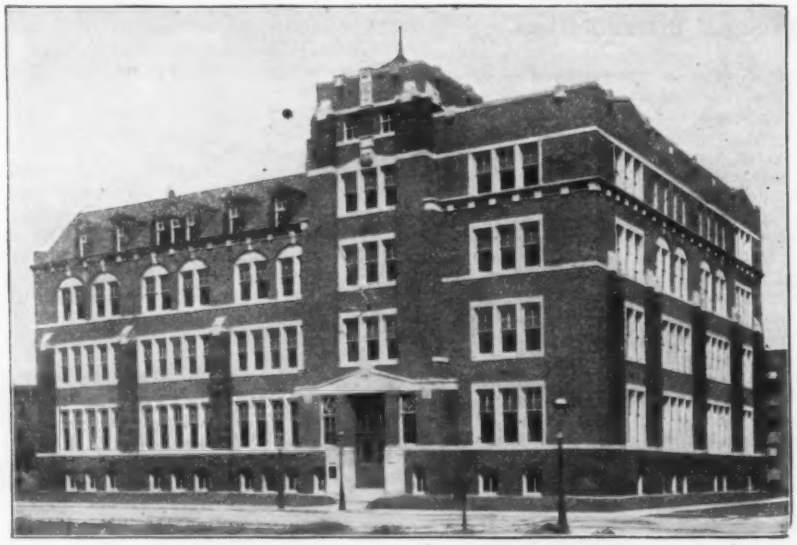
That the book will receive wide comment and commendation, and in some respects criticism as well, is the expectation of Mr. Gilbreth. In either case, its publication will be of advantage to the building industry, and thus serve its purpose.

Each contractor develops his system along lines

peculiar to the individuality of his own ideas and the ideas of those in his employ. Certain contractors have made public their methods in certain phases of their work. The publication of the Gilbreth "Field System" now goes a step further and presents a successful system in its entirety.

Building for the American School of Correspondence.

The building recently erected for the American School of Correspondence, Chicago, is of particular interest from both the architectural and the educational point of view. If it is true that a building reflects the character of its occupant it is easy to read the story of the American School, for this new home of home study is marked by solidity, dignity and usefulness. In its external lines it harmonizes perfectly with the practical purposes of its design and the dignity of its surroundings; and it is also a center from which radiate invisible lines reaching to the very ends of the earth. Here are the headquarters of a great institution devoted exclusively to correspondence instruction along technical lines—a quiet but forceful factor in the distinctly modern machinery of education, whose enlisted army of ambitious workers answers its roll-call from every quarter of the globe.



NEW BUILDING FOR THE AMERICAN SCHOOL OF CORRESPONDENCE.

The structure thus partakes to some extent of the nature of an office building as well as a school. Its design was, therefore, a complex problem dictated by several considerations. First, of course, was its intended use as a school and a center of administration, but a factor of almost equal weight was its location. It stands in the immediate vicinity of Washington Park and the Midway of world's fair fame, now an essential link in Chicago's great boulevard system. Thus it has the advantages of surroundings of great natural beauty. In conjunction with the University of Chicago, whose administration offices stand only two blocks away, the school is itself destined to be as instrumental in making this the educational center of the city, as it has been in making Chicago an important center of correspondence instruction.

This location dictated for the school a design that would in no wise conflict with the architectural scheme of the other educational structures which, in increasing numbers, are arising in the vicinity. The problem was to combine in the exterior design of a single structure the picturesqueness appropriate to collegiate architecture and the solidity and stateliness required in an office building. This scheme has been worked out in the utmost simplicity by the architects, Pond & Pond, Chicago.

The material of the exterior is paving brick of two shades, with Bedford stone for enrichment, and moss-green tile in the roof. The brick used in the basement and projecting corners of the rustications is of purplish red, somewhat darker than that used in the body; the tone is strengthened by its being laid with dark joints. The brick in the body of the wall is a medium warm red, variegated enough to have life and pleasing texture; its general contrast to the darker material is emphasized by it being laid with white joints, and by the white finish of the window sash and frames.

The building faces south. It contains four stories and basement. The general interior plan is that of the letter E: the return of the east and west wings encloses on two sides an open court, sixty feet square, walled in at the rear and entered through an arched driveway.

The note of green struck in the roof tiling is carried throughout the interior wood finish of the building, which is of quartered oak; the notes of purple and red reappear in the wall decoration, and the red in the polished granite of the entrance steps. Red is also present in the flooring of the vestibule and the corridor on the ground floor, which consists of plain red English quarry tile laid with broad dark joints and relieved by occasional mosaics of glazed and vari-colored tiling. The general interior color scheme is seen to best advantage in the vestibule. The high oaken wainscoting, the ceiling beams, and the furnishings are tinted a soft green; the walls and ceiling panels a warm buff, relieved with unique, conventional flowered designs in red, green and purple—the whole blending harmoniously and in pleasing contrast with the general darker tinting of the tiled floor.

In all its interior arrangements and appointments, the building is well adapted to its double purpose. In fact, the facilities possessed by this institution for the conduct of its practical courses and the imparting of high-grade and thorough instruction, and the systematic methods that it has evolved as the result of years of experience in teaching, are in themselves a revelation of typical American ingenuity and enterprise.

The administrative offices are on the second floor; the remainder of the building is used for the accommodation of the large staff of instructors, editors and other employes in charge of the various details of the work. An interior telephone system that is unsurpassed for completeness connects all departments. To facilitate the work of the business office and mailing room, several of the latest electrical appliances have been installed, including envelope sealers, adding and folding machines, all operated by electric power. In the basement are the stock and shipping rooms and the steam heating plant. The system of heating is known as the "direct-indirect." The larger radiators are located in juxtaposition to cold-air ducts that lead from the outside through the walls and supply an abundance of fresh air at all times. Electricity is used throughout for lighting purposes. The corridors and larger rooms are equipped with Nernst lamps, the other parts of the building with incandescent lamps. Lavatories with hot and cold water are located on each floor.

On the second floor are the lecture room and the rest room for employes. The lecture room is used as a meeting place for the clubs that have been formed at the works of the Crane Co., the McCormick Harvester Co., and other large manufacturing plants in and near Chicago. At these plants students of the American School have organized, appointed leaders from their own number, and found mutual assistance in studying together. From time to time they meet in the lecture room of the school, where they are provided with instructors, apparatus, and—since most of them come direct from the shop to the school—with a substantial lunch, all for the usual tuition. The school also provides its employes with free coffee and lunch at noon time.

Suitable quarters and adequate equipment mean as much to the students of the school as they do to the persons who occupy the various offices. They assure speed and accuracy in the handling of the enormous mail of the school, and make possible the careful organization which is necessary to any school, resident or correspondence, that would make its work thorough and practical and keep it up-to-date.

It is no small task to make a successful engineer out of the average student who enters a resident technical school, though he has the advantages of a good preliminary education, ample study time and personal instruction, the incentive of class competition, and the use of thousands of dollars' worth of apparatus. It is a tremendous task to make a successful engineer out of the man who was forced to quit school and earn his living, who works hard all the time and overtime half the time, who must study alone and at odd times, and who must be taught through books and letters by men a thousand miles away. That the American School of Correspondence can produce successful engineers under such circumstances proves that its students are in earnest, its instructors are exceptionally capable, and its organization is perfect.

Notice to Government Contractors.

We have received the following letter, dated Dec. 14, 1907, from the Bureau of Supplies and Accounts, Navy Department, Washington:

Editor Textile World Record:

The Bureau recently forwarded to certain manufacturers—160 in all—a circular letter explaining the recent improvements in the contract business of the Navy Department as regards: (a) waiving of bonds and contracts on proposals less than $500.00 in value; (b) unloading, at Government expense, deliveries at navy yards; (c) obviating delays in payment for deliveries made, and (d) abolishing 10 per cent. reservation from value of deliveries, etc., with a view of encouraging competition, thus eliminating certain objectionable features of bidding.

This letter has been given widespread attention through certain mediums—trade journals, jobbers' associations, etc.—and the impression has been created and disseminated broadcast throughout the country that the Bureau intends to confine competition to manufacturers only, by refusing to consider bids from the wholesaler, jobber, retailer and middleman.

The Bureau has neither the desire nor the power to exclude any reputable dealer from bidding on naval supplies. All bids from such persons will be given the same consideration, and in each case award will be made to the lowest formal responsible bidder. By reason of the onerous requirements under the old form of contract many responsible firms were unwilling to deal directly with the Bureau. By removing these onerous conditions it is hoped that such firms will bid directly for the Navy business, and, by thus widening competition, give to the Navy better prices and prompter deliveries.

Respectfully,
E. B. Rogers,
Paymaster General, U. S. N.

Telephone Card for Wool Trade.

F. Nathaniel Perkins, dealer in foreign and domestic wools, of 246 Summer St., Boston, Mass., has issued a New Year's card which is unique and decidedly useful in the wool trade.

It contains a list of the wool merchants, brokers and dealers with their telephone numbers, also lists of banks and trust companies, steamship, railroad and transportation companies, warehouses and other lines of business which are likely to be called on the phone. It is a decidedly useful reference card.

Designing Fabrics by Accident.

The death of a man of mark in the Yorkshire trade recalls a story of the part that lucky accident will play in textile industry. The late Mr. James Booth, of Halifax, did not depend upon accidents for success. He was always an innovator, and his special gift lay in the divination of what was wanted next in order to keep the mill busy. To him is credited the introduction of the worsted coating trade to Bradford, in the days when he was manager at Saltaire.

He made earlier successes by the adaptation of means not used previously in his own line of trade and some later ones. Of these, one was the origination of "Kyrle" cloth, which fifteen years ago was more familiar than now. The story goes that its discovery was due to what seemed a serious mishap. A piece of stockinet fabric containing wool and mohair was urgently wanted, as the sample for a large order. Special care and special haste were devoted to its preparation throughout, and its "finishing" was awaited with impatience. At the eleventh hour the foreman finisher, with a face as long as a fiddle, broke the news that the piece had spoiled in milling. Spoiled it was, and nothing could be done to remedy it; for the mohair, instead of peaceably milling like wool, had burst up into unruly loops. The case was inconceivably unfortunate, and no little was heard of the culpable carelessness that had led to the undoing of a set of high hopes. On the whole, the finisher was to be considered fortunate in not being discharged.

Then it became a question of what to do with this extraordinary cloth. Inspiration came, however! The fabric was shown to the glovers, with the suggestion that here was something new, and entirely suitable for the backs of kid gloves. The fabric was an extreme novelty; it was also a monopoly, and some seasons passed before competitors achieved the same effect. Meantime Mr. Booth's firm enjoyed a long run upon liberal quantities, with handsome prices—just what every manufacturer of fancy cloths dreams of, and what few attain!

The accident set a fashion in Kyrle or "curl" cloths for mantles, which ran through all manner of qualities, prices, and materials, and was doubtless of service to many others besides the strong-willed and now deceased master of Lee Bank Mills. If the incident cannot rank with that casual falling of an apple which led to an elucidation of the laws of gravity, it may at least take a place in the romance of industry. The occurrence of the unexpected has provided us with more novelties and changes than can ever be fully known; and something is to be said for the habit of preserving the memory of instances that are fairly authenticated. —The Textile Mercury.

A Southern Mill Town.

The Merrimack Mfg. Co., located at Huntsville, Ala., have issued a folder which shows a sample of the cloth they make and gives the following interesting particulars in regard to this Southern mill village: Located two miles south of Huntsville, on an electric car line. Cars run every fifteen minutes into Huntsville.

Merrimack has a population of 3,500. Huntsville is a growing city of 18,000 inhabitants, and possesses many natural advantages. Two railroads, the N. C. & St. L. and Southern, give the residents ample freight and passenger service. Freestone spring water, pumped through the mill village from Braham Spring, which has a supply of 8,000,000 gallons per day.

Merrimack is situated near a range of the Appalachian Mountains, with a temperate climate. It is said to be the healthiest village in the South. A corps of men are constantly at work cleaning and beautifying the streets. A beautiful village of 250 houses, well constructed and convenient. A nice, average sized house rents for $4.00 per month. The village is on high ground among beautiful shade trees; the streets and alleys are graded so they are well drained. The village is also well lighted by electricity. The mill does not run any store or commissary. The people trade where they please. Wages are paid every other Saturday. The mill stops at noon on Saturdays. There is a fine pasture containing 200 acres of land, covered with Bermuda grass and clover. A cow can be kept at practically no expense. A large, well lighted and conveniently located hall, equipped with lodge furniture and all necessary conveniences, is furnished free to the orders of Odd Fellows, Juniors, and Red Men. There is a modern school building, centrally located, with large, well-ventilated rooms, equipped with up-to-date furniture, lighted by electricity and heated by steam. A night school is provided for those who wish to attend. The school runs for nine months of the year and is free to all operatives. Two churches are in the village, well furnished and electrically lighted, with Sunday schools that rank with the best in North Alabama. The Merrimack Mfg. Co. contributes freely to the support of resident ministers. The Merrimack Mfg. Co. provides a large bathing pool and bath house equipped with shower baths. The Bradley Concert Band gives frequent musical entertainments free, which adds greatly to the life of the village. The band consists of 21 uniformed members, made up entirely of residents of Merrimack. The mills are among the largest in the South; the work rooms are well lighted and kept clean, heated by hot air in the winter and cooled by air blown over ice, in summer.

Recent Textile Patents.

BLEACHING APPARATUS. 872,265. Rene Van Buggenhoudt, New York, assignor of one-half to Otto Goetz, Brooklyn, N. Y.

BLEACHING COTTON Fibers. 872,097. Rene Van Buggenhoudt, New York, assignor of one-half to Otto Goetze, Brooklyn, N. Y.

BRAIDING MACHINES. Change gearing for. 873,698. Henry Janssen, Wyomissing, Pa., assignor to Textile Machine Works, Inc., Wyomissing, Pa.

CLOTH CUTTING Machine. 873,285. George L. Ballard, Norristown, Pa., assignor to Wildman Manufacturing Co., Norristown, Pa.

CLOTH SHRINKING Machine. 873,224. Charles W. Fenner, Cleveland, O., assignor to Spotless Steam Sponger Co., Cleveland, O.

CLOTH SHRINKING Machine. 873,656. Albert Bloch, Chicago, Ill.

DYEING. 873,636. Hans Toepfer, Elberfeld, Germany, assignors to Farbenfabriken vorm. Friedr. Bayer & Co., Elberfeld, Germany.

DYEING. 873,277. Gustav A. Waldinger and Carl F. Iserloth, Elberfeld, Germany, assignors to Farbenfabriken vorm. Friedr. Bayer & Co., Elberfeld, Germany.

DYEING MACHINE. 872,597. Daniel F. Waters, Philadelphia, Pa.

DYEING MACHINE. 872,807. Wm. H. Fletcher, Paterson, N. J.

FABRIC FOLDING and Stitching Machine. 872,381. James A. Schufelt, Oswego, N. Y., assignor to Frederick Conde, Oswego, N. Y.

FLAX-BREAKER FEEDING Mechanism. 871,863. George H. Ellis, St. Paul, Minn., assignor to International Flax Twine Co., a corporation of Minnesota.

KNITTING FABRIC. 872,163. Louis N. L. Williams, Ogontz, Pa., assignor of one-half to Robert W. Scott, Leeds Point, N. J.

KNITTING MACHINE Pattern Mechanism. 874,074. Harry A. Houseman, Philadelphia, Pa., assignor to Standard Machine Company, Philadelphia, Pa.

LOOM. 872,035. William Wattie, Worcester, Mass., assignor to Crompton & Knowles Loom Works, a corporation of Massachusetts.

LOOMS Lay Motion for 873,606. Alonzo E. Rhoades, Hopedale, Mass., assignors to Draper Co., Hopedale, Mass.

LOOMS. Wire Head and Fastening Means for. 873,448. Frank Mitchell and Charles Beal, Jr., Philadelphia, Pa.

LOOMS. Rotary Magazine for Weft Replenishing. 873,467. Melvin L. Stone, Lowell, Mass., assignors to Draper Co., Hopedale, Mass.

LOOM FOR THE MANUFACTURE of Tufted or Pile Fabrics. 872,507. Thomas Greenwood, Wolverley, near Kidderminister, England.

LOOM FOR THE MANUFACTURE of Tufted or Pile Fabrics. 872,508. Thomas Greenwood, Wolverley, near Kidderminister, England.

LOOM FOR THE MANUFACTURE of Tufted or Pile Fabrics. 872,506. Thomas Greenwood, Wolverley, near Kidderminister, England.

LOOM PICKER Check. 872,780. Wm. H. Ayer, Claremont, N. H.

LOOM PICKER Motion. 872,781. Wm. H. Ayer, Claremont, N. H.

LOOM POWER Gage and Lug Strap. 873,767. Chester A. Messer, East Madison, Me.

LOOM REED. 874,096. Antonio Marcante, Manville, R. I

LOOM-SHUTTLE-CHANGING Mechanism. 872,254. Eppa H. Ryon, Worcester, Mass., assignor to Crompton & Knowles Loom Works, a corporation of Massachusetts.

LOOM SHUTTLE. 871,911. Arthur Buckler, Philadelphia, Pa.

LOOM SHUTTLE. 874,331. Arnold Guldemann, Paterson, N. J., assignor to Isaac A. Hall, Paterson, N. J.

LOOM SHUTTLE Check. 872,782. Wm. H. Ayer, Claremont, N. H.

LOOM SHUTTLE Check. 872,779. Wm. H. Ayer, Claremont, N. H.

LOOM STOP-MOTION. 871,875. Chas. D. Lanning, Dorchester, Mass.

LOOM TAKE-UP Mechanism. 872,061. Albert A. Gordon, Jr., Worcester, Mass., assignor to Crompton & Knowles Loom Works, a corporation of Massachusetts.

LOOMS. Thread-Cutter for Weft Replenishing. 872,471. Edward S. Stimpson, Hopedale, Mass., assignor to Draper Co., Portland, Me., and Hopedale, Mass., a corporation of Maine.

MEASURING MACHINE. Cloth. 873,454. Levi P. Normandin, Jackson, Mich.

PILE FABRIC. 873,744. Harry Hardwick, Philadelphia, Pa., assignor to Ivins, Dietz & Metzger Co., Philadelphia, Pa.

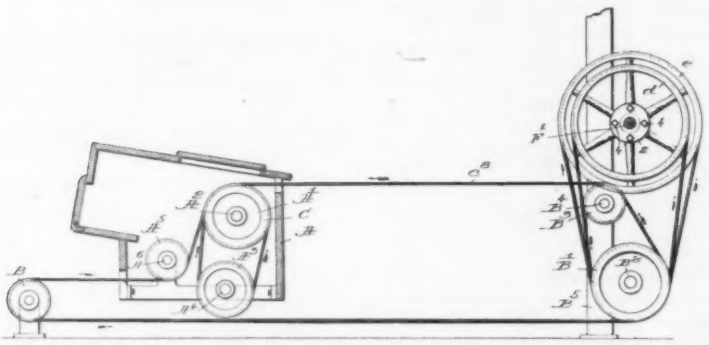
SPINNING-FRAMES. Whirl for Cap. 872,019. August A. Sack, Providence, R. I.

SPINNING-MACHINE Drawing Mechanism. 872,804. George A. Farley, Lawrence, Mass.

SPINDLE DRIVING Mechanism for Mules. 872,687. Wm. D. Rundlett, N. Andover, Mass., assignor to Davis & Furber Machine Co., N. Andover, Mass., a corporation of Massachusetts.

The invention relates to that class of mules wherein the rotation of the spindle-driving drum on the usual carriage is effected by means of a rim band or rope driven from grooved wheels on a rim shaft. On the shaft between the pulley, d^3, and the flange 2 at the end of said shaft is mounted the hub of the grooved pulley, e, employed for driving the band at its fastest speed, and on an extension of the hub of said pulley is secured a

belt pulley, e^1. The diameters of the pulley, d^2 and e^1, are the same, so that they may be driven by one and the same belt directly from any power shaft, and by shifting the belt from one to the other



pulley in usual manner, the band may be driven either at its fast or slow speed.

SPINNING MACHINE. Pneumatic Threading Device for. 871,910. Frank A. Breese, Philadelphia, Pa.

SPINNING MACHINERY. Ring. 873,483. Charles T. Atherton, Providence, R. I., assignors to Atherton Spinning Ring Co., Providence, R. I.

SPINNING MULE. 873,422. Henry S. Golland, Manchester, England.

THREAD and also Twisted Thread. Machine for Coating the Strands of a. 874,287. Eugene D. C. Bayne and Lawrence A. Subers, Cleveland, O.

THREAD FINISHING Machine. Silk. 874,235. Edward Pohl, Paterson, N. J.

THREAD-FINISHING Machine. Silk. 873,491. Xaver Bossart, Paterson, N. J., assignor to American Silk Thread Finishing Co., Paterson, N. J.

WATERPROOF FABRIC. 874,101. Emile Merou, Paris, France.

WEAVING in Natural Colors without Pattern Cards. 874,370. August Regal, Banjaluka, Austria-Hungary, assignor of one-third to Franjo Harazim and one-third to Eugen Karazej, Banjaluka, Austria-Hungary.

WOOL WASHING Machine. 872,020. Frederick G. Sargent, Graniteville, Mass., assignor to C. G. Sargent's Sons Corporation, Graniteville Mass.

Textile Trade Marks Registered.

"Anderson Zephyr." Ginghams. Wm. Anderson & Co., New York.

"Monroe Mills." Cotton Piece Goods. Boott Mills, Lowell, Mass.

"The Cap and Gown." Knit Gloves and Ladies' Hosiery. David J. Abraham, Berkeley, Cal.

"Fluffy Ruffles." Ladies' Suits, Waists, Petticoats, etc. M. Philipsborn, New York.

"Mazel." Men's, Boys' and Children's Clothing. Isaacs Bros., New York.

"Fort Brand." Overalls, Duck Coats, Pants, etc. Mulroney Mfg. Co., Fort Dodge, Ia.

"Geo. Washington, Jr., Clothes." Overcoats, Coats, Vests, etc. Block Bros. Clothing Co., St. Josephs, Mo.

"Monumental." Dress and Negligee Shirts. Jacob Lauer, Baltimore, Md.

"R. E. S." Printed and Dyed Cotton Piece Goods. Garner & Co., New York.

"D. M." Printed and Dyed Cotton Piece Goods. Garner & Co., New York.

"Ardsley Mills." Women's and Misses' Ribbed Underwear. Southdown Knitting Co., Allentown, Pa.

"Globe." Knitted Sweaters and Bathing Suits. Loeb Newman, New York.

"Sheltona." Dress Fabrics in Silk, Worsted, Cotton and Mohair. Sidney Blumenthal & Co., Inc., New York.

"Fluffy Ruffles." Textile Leggings and Overgaiters. H. Jacob & Sons, New York.

"Calitex." Knitted, Netted and Lace Goods. John W. Smith, Chester, Pa.

"Kuhla." Silk Piece Goods. The Valentine & Bentley Silk Co., New York.

"Thread & Thrum Workshop." Hand-Woven Rugs and Portieres. Nye & Wait, Auburn, N. Y.

"Diamond Hill." Shirtings, Cambrics and Long Cloth. Grinnell, Willis & Co., New York.

"Fluffy Ruffles." Ladies' and Girls' Linen, Cotton and Woolen Suits.

"Ivanhoe." Gloves of Textile Fabrics. Marshall Field & Co., Chicago, Ill.

"Banner." Knitted Hosiery. Maryville Hosiery Mills, Maryville, Tenn.

"Eutex" Laces. John W. Smith, Chester, Pa.

"Pantafly" Trousers. George Sichert, New York.

*New York, Waterford. The plant and stock of the Harmony Knitting Mill, previously reported destroyed by fire, was insured for $81,500. It is understood that the plant will be rebuilt immediately. A temporary office has been located with the Crystal Spring Water Co. on Division St.

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Half of this is from tight belts.

Cling-Surface permits every belt to be run easy and carry fullest loads and turns this half from overcoming friction to doing work.

Besides preserving the belts, saving oil, labor and fuel, and giving steady, even speed at machines.

It is a belt food — not a sticky dressing.

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Boston: 170 Summer Street

New York: 39 Cortlandt Street

Philadelphia: The Bourse

The Cotton Manual

BY J. T. BROADBENT

of the Bradford-Durfee Textile School, Fall River, and formerly of the Mississippi Textile School.

This little Manual was prepared with the idea of telling briefly, but comprehensively, the things about the cotton fibre, its cultivation, and the ginning and markering of the cotton crop, the different kinds of cotton, and other matters bearing on raw cotton, such as the average student or person connected with cotton manufacturing or the sale of cotton goods, wants to know.

There are excellent chapters on cotton baling, describing the different kinds of bales and baling processes, and on the opening and mixing of cotton in the mill, with account of different machines employed, and improved methods of mixing.

The book contains about 100 pages, with 20 illustrations, and should be in the possession of every person having to do with cotton in any state, from the seed to the retail purchaser.

Price 75 Cents

Published by LORD & NAGLE COMPANY

144 CONGRESS STREET, BOSTON, MASS.

Buyers' Index.

The addresses of builders of mill machinery and dealers in mill supplies, whose names appear in the following classified index, may be found upon referring to their advertisement. The Alphabetical Index to advertisers follows this classified list. Buyers who are unable to find in these classified lists such machinery or supplies as they desire, are invited to communicate with the publishers, who can, in all probability, refer them to proper sources.

Advertisers whose names do not appear under desired headings will please notify the publishers. Such omissions are accidental, not intentional.

Accounts Financed.
Cathrall, W. M.

Air Moistening System.
American Moistening Co.
Bell Pure Air & Cooling Co.

Architects and Mill Engineers.
Collins, Newman.
Ferguson, John W.
Main, Chas. T.
Suck, Adolph.

Arc Lighting (Inverted).
Toerring, C. J., Co.

Asbestos Products.
Johns-Manville Co., H. W.

Asphalt Floors.
Simpson Bros. Corporation.

Asphalt Tanks.
Scaife, W. B., & Sons.

Automatic Feeds for Cotton and Wool.
American Drying Machinery Co.
Kitson Machine Co.
Leigh, Evan A.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Schofield, Wm., Co.
Woonsocket Machine & Press Co.

Automatic Warp Tying Machines.
Barber-Colman Company.

Bale Ties.
Acme Steel Goods Co.
DeHaven Manufacturing Co.

Bandings.
——See under Yarns.

Baskets.
Lane, W. T., & Bro.
Morris & Co.

Belting.
Chicago Belting Co.
Gandy Belting Co.
Main Belting Co.
Shultz Belting Co.
——See also Mill Supplies.

Belt Dressing.
Cling Surface Mfg. Co.
Dixon, Jas., Crucible Co.
Shultz Belting Co.
Stephenson Mfg. Co.

Belt Lacing Machines.
Birdsboro Steel Foundry & Machine Co.

Bindings.
——See Tapes and Braids.

Bleaching Kiers.
Allen, Wm., Sons Co.
Arlington Mch. Wks. (Arthur Birch, prop.)
Philadelphia Drying Machinery Co.
Textile Finishing Machinery Co.

Bleaching Materials.
Bosson & Lane.
Roessler & Hasslacher Chemical Co.

Blowers and Blower Systems.
American Blower Co.
Buffalo Forge Co.
Dean Bros. Steam Pump Works.
Green Fuel Economizer Co.
Mass. Fan Co.
Philadelphia Drying Machinery Co.
Sterling Pipe & Blower Co.
Sturtevant, B. F., Co.
Schnitzler, Chas. H.

Bobbins, Spools, Shuttles, Etc.
American Supply Co.
American Textile Specialty Mchy. Co.
Leigh, Evan A.
Tebbets, E. L., & Co.
Wilson & Co.

Bobbin Winders.
Universal Winding Co.

Boiler Cleaners.
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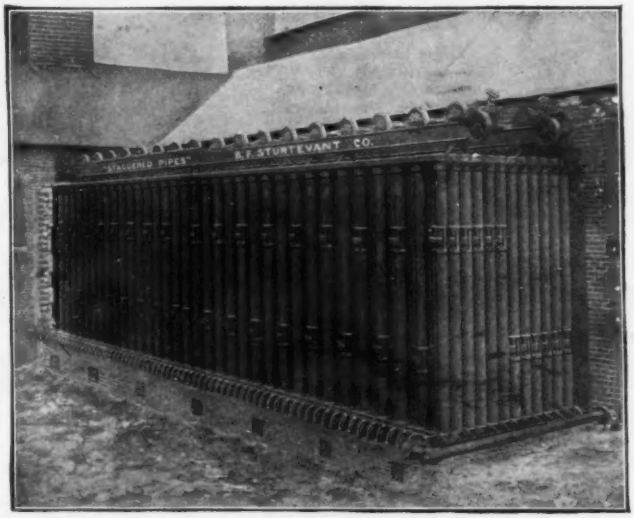

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Fire Hydrants.
Norwood Engineering Co.

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Home Insurance Co.

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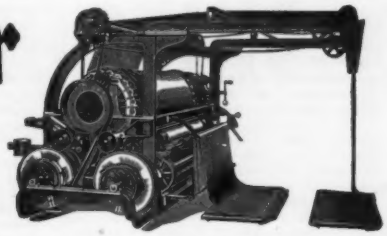
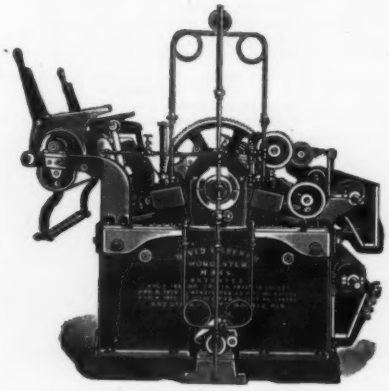
Worcester, Mass.





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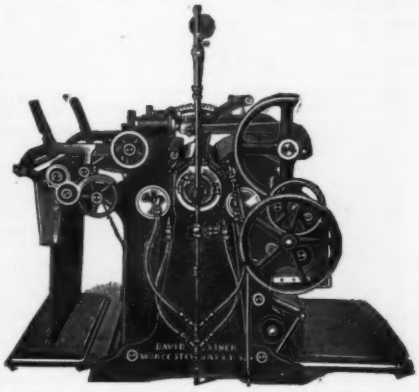

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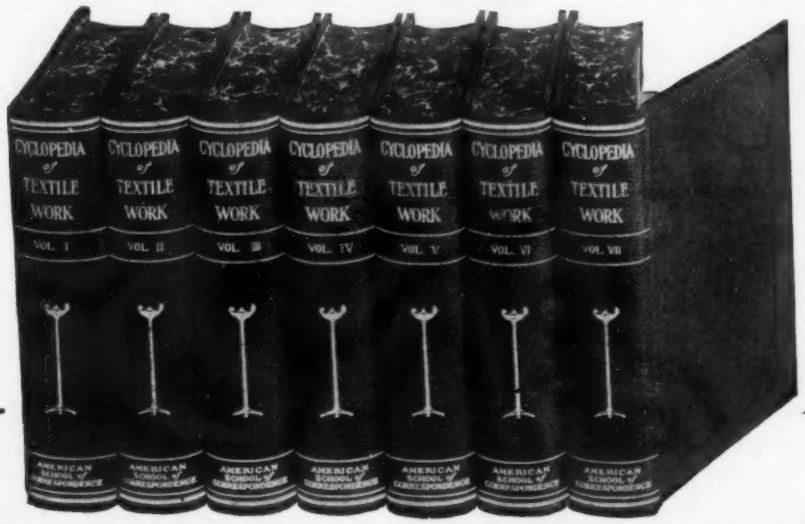

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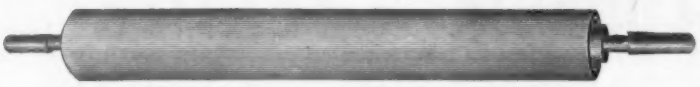

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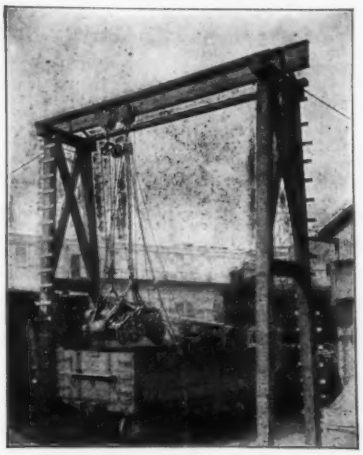

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Superintendent or Assistant Superintendent, or first-class boss weaving position. Position wanted by a man 40 years of age, married. Worked on all kinds of fancy worsteds and woolens. Familiar with all up-to-date machinery. Good references. 3996 Textile World Record.

Agent or Superintendent of a cotton mill. Position wanted by a man, 40 years of age, American, married. Familiar with fancy, colored and plain goods of all kinds. Familiar with all kinds of cotton machinery. Has been overseer for a number of years in first class mill. Could take a position at short notice. Good reference. 3814, Textile World Record, Boston, Mass.

Supt. or Asst. Supt. Position wanted by a man 45 years of age, married and American. Has worked on cassimeres, wool and cotton worsteds, kerseys, cloakings, meltons and cheviots. Is familiar with all kinds of woolen machinery. Good references. 3523. Textile World Record.

Assistant Superintendent and Assistant Designer. Position wanted by a man 27 years of age, German. Has worked on fancy cassimeres, overcoatings and dress goods. Is familiar with Crompton & Knowles looms. Good references. 3681, Textile World Record, Boston, Mass.

Worsted Superintendent or overseer of combing, spinning and twisting. Worked on mohair, alpaca, all foreign and domestic wools. Familiar with all kinds of machinery; first-class references. Age 45, married. 3248, Textile World Record.

Manager, Agent, Supt. or Supt. and Designer. Position wanted by a man 57 years of age, English, married, has worked on all classes of woolen and worsted goods, in fancy and piece dyes, from the finest to the coarsest goods. Familiar with all kinds of machinery, has exceptionally good reference, could take a position at once. 3705, Textile World Record.

Superintendent or assistant superintendent in a woolen mill. Position wanted by a man, 30 years of age, American, married. Familiar with all kinds of woolen and worsted goods, also yarn production from fine to low grades. Also familiar with French system of worsted yarn manufacturing. Good reference. 3795, Textile World Record, Boston, Mass.

Superintendent and Designer or assistant superintendent and designer in a woolen mill. Position wanted by a man 29 years of age, American, married. Worked on all grades of woolen goods, both wool and worsted, also blankets. Familiar with all kinds of machinery. Will go any place for a good position. 3838, Textile World Record, Boston, Mass.

Superintendent or Manager of Woolen Mill. Position wanted by a man 47 years of age, married, Scotch. Is experienced on worsteds, fancy cassimeres, homespuns, meltons, thibets, kerseys, overcoatings, cheviots and dress goods. Is familiar with all kinds of woolen machinery. Good references. 3619, Textile World Record, Boston, Mass.

COTTON SUPERINTENDENTS.

Superintendent or Assistant Superintendent of a cotton mill. 44 years of age, married. Has worked on ginghams, shirtings, fancy dress goods, turkey red, damask, cotton warp and fancy yarns for woolen mills. 23 years of practical experience and is familiar with all kinds of machinery used in the manufacture of the above goods. Will not go West or South. Good reference. 4501, Textile World Record, Boston.

Manager, Superintendent, Buyer or cost accountant in a cotton mill. Position wanted by a man 30 years of age, American, single. Has had a practical training in the manufacturing of cotton goods. Good reference. 3834, Textile World Record, Boston, Mass.

Superintendent and Designer. Position wanted by a man 30 years of age, English. Has worked on all kinds of fancy cotton goods, and is familiar with all kinds of cotton looms. Good references. 3682, Textile World Record, Boston, Mass.

wanted by a man, 42 years of age, American, married. Has worked on a general line of colored goods, sheetings, prints and shirtings. Familiar with all kinds of cotton machinery. Has held a position as superintendent in some of the leading mills. Could be employed at short notice. 3726, Textile World Record, Boston, Mass.

Superintendent and designer, or assistant superintendent. Age 34; married. Worked on cloths ranging from all cotton to all wool and worsteds, such as cotton worsteds, jeans, army cloths, kerseys, etc. **Excellent references. 3148, Textile** World Record.

Superintendent of Cotton Mill, or overseer of cotton weaving. Position wanted by a man 38 years of age, married, American. Worked on shirtings, sateens, dress goods, satin and Marseilles quilts. Familiar with Crompton, Knowles, Whitin and English looms; Lowell frames; Saco & Pettee cards. Good references. 4031 Textile World Record.

Assistant Superintendent or Overseer of weaving in a cotton mill. Position wanted by a man 31 years of age, married, American. Worked on plain sateens, fancy lenos, box work, as high as 100s warp, and 160s filling. Familiar with all kinds of machinery. Will not go West, South or Canada. Good references. 4019 Textile World Record.

Superintendent Cotton Mill or overseer of carding in large mill. 35 years of age; married; American. Worked on coarse and fine fancy cloths. Carded combed staple cotton for weaving as fine as 135s. Carded solid colors and mixes for hosiery yarns to 80s. Good references. 3447, Textile World Record. Boston.

Superintendent of a Print Works, bleach or dye works is open for engagement. Has worked on all kinds of cotton goods and finished, printed, bleached and dyed all classes of goods from ducks to fine lawns. Would like to communicate with manufacturers in the South in establishing a plant of this kind; good references. 4041 Textile World Record, Boston.

Superintendent of a bleachery or print works or assistant superintendent. Position wanted by a man, 38 years of age, an American, married. Worked on all kinds of cotton piece goods. Familiar with all kinds of machinery used in handling these goods. Now employed. First class recommendations. 3724, Textile World Record, Boston, Mass.

COTTON WEAVERS.

Overseer of Cotton Weaving. 39 years of age, married, American. Has worked on automobile tire fabrics, oils and sugar refining fabrics and all heavy duck goods and also plain goods. Familiar with the Crompton & Knowles, Lowell, Whitin and Draper looms. Will go any place for a good position. 4505, Textile World Record, Boston, Mass.

Overseer of Cotton Weaving. Has worked on plain sateens, fancy bedford cords, jacquard goods, lenos, cotton, silk and mercerized yarns, single and two ply. Familiar with all makes of cotton looms and also jacquards, single and double lift. Will not go West or South. 4503, Textile World Record, Boston, Mass.

Overseer of Cotton Weaving. 47 years of age. Worked on ducks, lawns, stripes, plaids and all kinds of twilled cotton goods. Familiar with Draper, Lowell, Whitin, Crompton & Knowles looms. Will go any place for a good position. Good reference. 4510, Textile World Record, Boston, Mass.

Overseer Cotton Weaving or Second Hand in a large mill. 33 years of age, American. Worked on plain and fancy lenos, sateens, twills, etc. Familiar with the Whitin, Colvin, Mason, Crompton & Knowles and Draper looms. Good reference. Will not go West or South. 4514, Textile World Record, Boston, Mass.

Overseer of Cotton Weaving. 44 years of age, English, married. Worked on all kinds of cotton goods, plain and fancy. Familiar with American and English looms. Will go any place for a good position. Good reference. 4508 Textile World Record, Boston, Mass.

Overseer of Cotton Weaving. A married man, 32 years of age, American. Worked on plain and fancy sateens and jacquard effects. Also all kinds of cotton cloths, particularly fine goods and silks. Familiar with the Draper, Whitin, Colvin and jacquard looms. Good reference. 4516, Textile World Record Boston, Mass.

Overseer of Cotton Weaving. Worked on lenos, checks, plaids, fancy stripes, drop box and plain looms. First-class references. Will not go West or to Canada. Age 36, English. First-class references. 1855, Textile World Record.

Overseer of Weaving. Englishman; 33 years of age; married; worked on fine lawns, sheetings, sateens and fancies, coarse drills, twills, bicycle cloth, automobile cloth for tires. Familiar with Whitin, Crompton, Knowles, Mason, Kilburn & Lincoln and Lowell machines. 3073, Textile World Record.

Overseer of Weaving or loom fixing. Worked on cotton, woolen, silk. Used to Crompton & Knowles looms, both box and plan, Lewiston looms, Mason, Colvin, Whiting, Patterson, etc. Age 43; Scotch; married. 3216, Textile World Record.

MISCELLANEOUS.

Wanted. Position as bookkeeper or traveling salesman by man of experience, would invest $2000 to $2500 with a good firm with a position after both parties were satisfied, middle age man, married, of good habits, with good reference. 3472, Textile World Record, Boston.

Overseer of London Shrinking Department. Position wanted by a man 33 years of age, single, and has had 13 years experience with the English method of shrinking. Familiar with Crawford Hydraulic Presses, also Curtis & Marble. Good references. 3963, Textile World Record, Boston.

Master Mechanic. Position wanted by a man 44 years of age; has had experience as master mechanic in cotton and knitting and all textile mills. Will not go west, or Canada. Could take a position at short notice. 3782, Textile World Record, Boston.

Overseer Twisting, spooling and warping in a cotton mill. Position wanted by a man 33 years of age, married, American. Worked on coarse and fine, white and colored cotton goods. Familiar with Draper, Collins Bros. and Whitin and Lowell machines. Wants New England only. Good reference. 3830 Textile World Record, Boston, Mass.

COTTON CARDERS.

Overseer of Cotton Carding. 50 years of age, married. Worked on white and colored cotton goods. Has had 25 years of experience as overseer. Good reference. Prefers a position in the New England states. 4515, Textile World Record, Boston, Mass.

Overseer of Cotton Carding. American; 34 years of age; worked on all classes of cotton goods and all machinery used in this work. Would accept a good second hand position. Prefers position in the East. 3393, Textile World Record.

Overseer of Carding in cotton mill. Position wanted by a man 32 years of age, married, American. Worked on waste, Upland, Bender, Peeler and Egyptian, both combed and carded, making roving for yarns from 3s to 100s. Familiar with all kinds of machines. Good references. 3969 Textile World Record.

Superintendent or overseer of carding in a large mill. Worked on sheetings, ginghams. Will not go West. Familiar with all kinds of cotton machinery. 41 years of age; American; first-class references. 2021, Textile World Record.

Supt., Asst. Supt., or Overseer of Carding. Position wanted by a man 39 years of age, married, American. Is experienced on all kinds of cotton colored goods, long or short stock, also on bleached stock. Is familiar with Colvin, Whitin and Crompton looms, and all makes of carding and spinning machinery. Good references. 3585, Textile World Record.

Superintendent of cotton or woolen yarn mill or shoddy plant. Position wanted by a man 50 years of age, who has had a wide experience in the manufacture of yarns. Understands all makes of cotton and woolen machinery, also held position as superintendent in large knitting mills, and is familiar with the American makes of knitting machines. First-class recommendations. 3249, Textile World Record, Boston, Mass.

Superintendent of a Cotton, Cloth or Yarn Mill. Position wanted by a man, 39 years of age, American, married. Is familiar with cotton hosiery and warp yarns, single or two-ply. Is at present employed as superintendent of a cotton yarn mill, but wishes to change for advancement. Strictly temperate and industrious and can furnish the very best of references. 3853, Textile World Record, Boston.

Overseer of Carding in cotton mill. Position wanted by a man 28 years of age, married. Familiar with white and colored numbers up to 16 H. K. Familiar with the following makes of machines: Platt, Mason, Whitin, Lowell, Providence, Kitson and Atherton. Good references. Will not go to Pa., N. J., Western or Southern States, or to Canada. 3951, Textile World Record.

MISCELLANEOUS.

Second Hand over Warping and spooling in a cotton mill. Position wanted by a man, 60 years of age, widower; worked on tickings, awnings, shirtings, flannels, sail cloths, prints, etc. Will not go south. Good reference. 3778, Textile World Record, Boston.

Loom Fixer or second hand in weave room. Worked on all kinds of mixed goods, cotton and woolen dress goods, fine lenos, Jacquard and drop box looms. Age 33; French; good references. 3265, Textile World Record.

Second Hand in Cloth Room wants position as overseer or second hand; 20 years' experience on all kinds of goods; understands napping thoroughly; good references. 3048, Textile World Record.

Overseer Boarding and finishing hosiery. All kinds of men's, women's and children's hosiery, except silk; age 41:: American; married. Can furnish references. 3035, Textile World Record.

Sketch Maker in Print Works. Position wanted by a man 50 years of age, married. Has worked on all kinds of goods that are printed. Twenty years' experience in large mills. Good reference. 4078, Textile World Record, Boston, Mass.

WOOLEN WEAVERS.

Overseer of Woolen Weaving, Second Hand or loom fixer in a good mill. 34 years of age, married. Has worked on fancy woolens, worsteds, blankets, etc. Familiar with Crompton & Knowles looms. Will not go West, South or Canada. Good reference. 4517, Textile World Record, Boston, Mass.

Overseer of Woolen Weaving. 43 years of age, married. Has worked on all kinds of woolen and worsted goods. Understands Crompton & Knowles looms. Would prefer a position in the New England states. Good reference. 4504, Textile World Record, Boston, Mass.

Overseer of Woolen Weaving. 33 years of age, married. Worked on woolen and worsteds, cotton worsteds and dress goods. Familiar with the Crompton & Knowles looms. Will not go West, South or Canada. Good reference. 4507, Textile World Record, Boston, Mass.

Overseer of Woolen Weaving. American, 37 years of age, accustomed to fancy worsteds and woolens, dress goods, etc. Held last position 6 years. Prefers the East. 3397, Textile World Record, Boston.

Overseer of Woolen Weaving, 44 years of age, with experience on woolen and worsted cassimeres, dress goods, overcoatings, etc., and on Knowles and Crompton looms. Would like position in the Middle West. 3385, Textile World Record, Boston.

Woolen Boss Weaver. Worked on worsteds, woolens of all kinds, also dress goods. American; 38 years of age; married. 3231, Textile World Record.

Overseer of Weaving. Position wanted by a man 42 years of age, American, married, worked on all kinds of woolen and worsted goods, familiar with Crompton & Knowles and Crompton & Thayer and Jacquard looms, first class recommendation. 3694, Textile World Record.

Overseer of Weaving. Position wanted by a man 39 years of age, American. Has worked on unions, cassimeres, shirtings and overcoatings. Is familiar with Crompton & Knowles looms. Good references. 3601, Textile World Record, Boston, Mass.

Overseer of Weaving. Position wanted by a man, American, 45 years of age and married. Has worked on dress goods, cloakings, flannels, meltons and unions. Is familiar with Crompton & Knowles and Stafford looms. Good references. 3494, Textile World Record, Boston.

Overseer of Woolen Weaving. 18 years' experience as overseer. Worked on cassimeres, cloakings, chinchillas, cheviots, beavers, meltons, shawls, also worsteds and on Crompton and Knowles looms, wants a position in the East. Good references. 3422, Textile World Record, Boston.

Overseer of Weaving in a woolen mill. Position wanted by a man 37 years of age, married. Familiar with all classes of woolens, fancy worsteds, cotton worsteds, unions. Familiar with Crompton & Knowles, Crompton & Thayer, Draper automatic looms. Good references. Will not go to Canada. 3965 Textile World Record.

Overseer of Woolen Weaving or assistant designer. Position wanted by a man 33 years of age, married, German-American. Worked on woolen and worsted. Has had 12 years' experience as loom fixer; also textile school training in designing. Worked on high and low grade woolen and worsteds. Prefers a position in the New England States. Good references. 3962 Textile World Record.

Overseer of Weaving. Position wanted by a man 28 years of age, single and Scotch. Has worked on wool and worsted, and union goods, blankets, shirtings, rugs, etc. Is familiar with Crompton & Knowles, also English looms and dobbies. Has good references. 3507, Textile World Record.

WOOLEN CARDERS.

Overseer of Wool Carding. 37 years of age, married, American. Worked on fine and coarse woolen goods, cotton, wool and silk noils and mixes. An exceptional good man on low stock. Familiar with D. & F. and Cleveland cards. Good reference. 4522, Textile World Record, Boston, Mass.

Overseer of Woolen Carding (in medium size mill) or second hand (in large mill). Position wanted by a man 24 years of age. French-American. Worked on all kinds of stock, cotton, wool, shoddy mixes. Eleven years' experience in card room. Good references. 3880, Textile World Record.

Overseer of Carding or superintendent in a shoddy mill, carder and spinner in a small woolen mill. Position wanted by a man, 38 years of age, Scotch-American. Worked on all kinds of stock, cotton and wool shoddy mixes. Familiar with all kinds of carding machinery. Could take a position at once. 3738, Textile World Record, Boston, Mass.

Overseer of Woolen Carding or second hand in a large mill. Position wanted by a man, 38 years of age, married, and has worked on all classes of wool, cotton and shoddy mixed goods. Understands all kinds of carding machinery. Will not go West or Canada. Could be employed at short notice. Good references. Address 3868, Textile World Record, Boston.

Overseer of Woolen Carding. Position wanted by a man 34 years of age, married, American. Worked on all kinds of stock, dress goods, blankets, etc. Has been overseer 11 years in his present position. Desires to make a change. Has been overseer in a number of the leading mills. Will not go South or to Canada. Good references. 3940, Textile World Record.

Overseer of Carding in woolen mill. Position wanted by a man 55 years of age, married. Familiar with all classes of goods, and all the different makes of machines. Will not go to the Southern States. Good references. 3947, Textile World Record.

Overseer of Woolen Carding. Position wanted by a man 38 years of age, Scotch, married. Has worked on all kinds of woolen goods made from wool, cotton and shoddy mixes. Has worked in first class mills and has good references from same. Will not go South. 3920, Textile World Record, Boston.

Overseer Woolen Carding. Position wanted by man 36 years of age, married; worked on woolen goods of most all kinds on Cleveland, Furbush, Smith, Davis & Furber, Plat, Goldie & McCulloch bark condensers; good references. 4045 Textile World Record, Boston.

Overseer of Woolen Carding, or Carder and Spinner. Position wanted by a man 36 years of age, married, worked on all kinds of stock, wool shoddy, cotton, mixed goods, understand all makes of cards and J. & B., D. & F. mules. Good reference; will not go to Maine, Pennsylvania, West, South or Canada. 4037, Textile World Record, Boston.

Overseer of Woolen Carding. Position wanted by man 46 years of age, widower, worked on all kinds of woolen goods and on all kind of stock, wool, cotton and shoddy mixes. Good reference from four leading mills where employed, could take position at once as mill where last employed have stopped carding. 4039, Textile World Record, Boston.

Overseer of Woolen Carding. Position wanted by a man 47 years of age, married. Worked on woolens and knit goods, both fine and coarse, and all makes of cards. Good reference from mills where he has been employed. 3535, Textile World Record, Boston, Mass.

Overseer of Woolen or worsted carding. Would accept a position as superintendent of a felt mill. Understand the business in every detail. Worked on all kinds of stock and all makes of cards. First class reference. Will go any place for a good position. 45 years of age. American, married. 3470, Textile World Record, Boston.

SPINNERS.

Overseer of Woolen Spinning or carding and spinning in a small mill. Married man, 38 years of age. Has worked on all kinds of woolen, cotton and shoddy mixed goods, yarns from 1/2 to 8 run. Familiar with all makes of American and English carding and spinning machinery. Will go any place for a good position. Good reference. 4502, Textile World Record, Boston, Mass.

Overseer of Ring or Mule Spinning in a cotton mill of from 20,000 to 60,000 spindles. 45 years of age, married, American. Has worked on all kinds of goods, white and colored. Familiar with English and American carding machinery, combs, warping, spooling and winding. Can furnish the best of references as to character and ability. 3850, Textile World Record, Boston, Mass.

Overseer or Mule or Ring Spinning. A married man, 45 years of age, English. Worked on all kinds of cotton goods and all numbers, both coarse and fine, also hosiery yarns. Familiar with all makes of English spinning machinery. Will not go South. Good reference. 4520, Textile World Record, Boston, Mass.

Overseer of Woolen Spinning. Position wanted by a man, 48 years of age, American, married. Worked on all kinds of yarn from 1/2 to 10 run, all kinds of stock, wool, cotton and shoddy mixes. Familiar with J. & B., D. & F., Parr, Curtiss, Bideford, Pault Pavercroft mules. Will not go West or South. Good reference. 3810, Textile World Record, Boston, Mass.

Overseer of Worsted Drawing or drawing and spinning. Position wanted by a man, 29 years of age, single, English. Has worked on all grades of wool from the longest Scotch to the finest Australian wools. Familiar with all makes of English drawing, spinning and twisting machinery. Also Lowell machines. Good reference. 3799, Textile World Record, Boston, Mass.

Overseer of Worsted Drawing. Position wanted by a man 30 years of age, married, and American. Is experienced on mohair, alpaca and wool. Bradford system, and is familiar with Prince, Smith and Hall & Stells, worsted machinery. Good references. 3593, Textile World Record, Boston, Mass.

Boss Spinner in woolen mill. Worked on all kinds of woolen, cotton and shoddy mixed goods. Familiar with Johnson & Bassett. Would prefer Furbush mules. First-class recommendations; age 29; American. 3287, Textile World Record.

Overseer of Frame or mule spinning and twisting. Position wanted by a man 46 years of age, married and American. Has worked on sateens, twills, 30 warp, 46 filling yarns from 3s to 150s. Is familiar with all makes of spinning and twisting machinery. Good references. 3582, Textile World Record, Boston, Mass.

Overseer of ring spinning, spooling and warping. Position wanted by a man 32 years of age, American. Has worked on denims, plaids, awnings, checks, lawns, sheetings, lenos, shirtings, etc. Is familiar with Mason, Whitin, Lowell, Davis & Furber and Fales & Jenks, spinning machinery. Good references. 3604, Textile World Record, Boston, Mass.

Overseer or Second Hand of spinning in a woolen mill. Position wanted by a man 28 years of age, married, American. Worked on fancies and twists, etc. Familiar with Davis & Furber mules. Good references. 4022 Textile World Record.

Overseer of Ring Spinning Cotton Mill. Position wanted by a man 30 years of age, single; has had a number of years' experience in different departments, a graduate of a well known textile school, understands different makes of machinery, good reference as to character and ability. 4047 Textile World Record, Boston.

Second Hand in a Woolen Spinning Room. Position wanted by a young man 30 years of age, single, has had a number of years' experience as spinner and has been allowed to fix his own machines. Would like to get a position as second hand where he could learn to fix mules under a good man. He is familiar with D. & F. or J. & B. machines, and wants a position in the West or Middle West. 3707, Textile World Record.

FINISHERS.

Overseer of Woolen Finishing. Position wanted by a married man, 50 years of age. Has had a wide experience in leading mills on all classes of woolen and worsted goods. Is an expert on broad cloths or kerseys. Good reference. Could take a position at once. 4527, Textile World Record, Boston, Mass.

Overseer of Finishing in a hosiery mill or superintendent in a small mill where superintendent would have charge of dyeing and finishing in addition to his other work. 37 years old, married. Has worked on infants', misses', ladies' and men's hosiery, seamless and full fashioned, cotton, wool and mixtures. Is familiar with all kinds of finishing machinery. Good reference. 4099, Textile World Record, Boston, Mass.

Overseer of Finishing. Worked on all kinds of woolen and worsted goods. Familiar with all makes of finishing machinery. Will go any place for a good position. Now employed but could leave at reasonable notice. Good reference. 3046, Textile World Record, Boston, Mass.

Overseer of Bleaching, Starching or Finishing. 26 years of age, single. Worked on drills, twills, sateens, cords, sheetings, shirtings, ducks, towels, mulls, cambrics and muslins, in fact all kinds of cotton goods. Familiar with all kinds of machinery used in handling these goods. Good reference. 4513, Textile World Record, Boston, Mass.

Overseer of Finishing. Worked on all kinds of men's wear, fancies and piece dyed woolens and worsteds, dress goods of every description and face goods. First-class references; 36 years of age; Scotch. 3273, Textile World Record, Boston, Mass.

Overseer of Finishing and Napping of cotton goods. Position wanted by a man, 33 years of age, Canadian, married. Has worked on oxfords, ginghams, chambrays, dress goods, flannellettes, blankets, domets, etc. Is familiar with all kinds of American, German and English finishing machinery, tenter frames, calenders, stretchers, presses and nappers. Good reference. 3772, Textile World Record, Boston.

Overseer of Finishing or second hand. Position wanted by a man, 33 years of age, American, married. Worked on satinets, cloakings, shirtings and dress goods. Familiar with the different makes of finishing machinery; understands the Parks & Woolson shears and Curtiss & Marble. Good references. 3769, Textile World Record, Boston.

Overseer of Cotton Finishing and napping. Position wanted by a man, 34 years of age, Irish, single. Has worked on domets, sheetings, all weights and widths, flannels, blankets, double felts, duckings, drillings and shirtings. Familiar with all kinds of finishing machines used in the finishing of these goods. Good reference. 3773, Textile World Record, Boston.

Overseer of Wet Finishing and gigging. Position wanted by a man 48 years of age, American. Has been employed in one of the largest mills in the N. E. States as overseer of wet finishing and gigging. First class references. 3722, Textile World Record, Boston, Mass.

Overseer of Finishing. Position wanted by a man, 34 years of age, English, married. Worked on beavers, meltons, friezes, cassimeres, satinettes, chinchillas, cotton fancy and piece dyed worsteds. First class recommendation. 3729, Textile World Record, Boston, Mass.

Overseer of Bleaching and Finishing. Position wanted by a Scotchman, 42 years of age, married. Thoroughly experienced in bleaching and finishing cotton piece goods, linens, etc. 18 years' experience in England, Scotland and United States. First class references from mills where employed. 3485, Textile World Record, Boston.

Superintendent of bleaching and finishing cotton goods. Worked on all kinds of cheese cloth, buttercloth, sheetings, quilts, cambrics, long cloth, ducks and drills. Age 31; English; married. 3218, Textile World Record, Boston, Mass.

Overseer of Woolen Finishing. Position wanted by married man 30 years of age; worked on cheviots, dress goods, all grades of worsteds, overcoatings, suitings. 4048 Textile World Record, Boston.

SUPERINTENDENTS AND DESIGNERS.

Designer. A married man, 26 years of age. Worked on woolens, cassimeres, worsteds and cotton worsteds. Would like an interview with any manufacturer in need of a first class man. Good reference. 4512, Textile World Record, Boston, Mass.

Superintendent, Assistant Superintendent and Designer, or overseer of weaving and finishing. Position wanted by a man 33 years of age, American. Is experienced on ginghams, madras, shirtings, linings, lawns, silks and ducks. Is familiar with all kinds of cotton machinery. Good references. 3616, Textile World Record, Boston, Mass.

Superintendent or Designer in a woolen mill. Position wanted by a man 47 years of age, married, American. Worked on all kinds of woolen and worsted goods. Familiar with all kinds of woolen machinery. Four workers in the family. 3977 Textile World Record.

Superintendent, Designer or boss weaver. Position wanted by a man 39 years of age, married. Has worked on woolen and worsted. Would take a position anywhere. First class reference. 3925, Textile World Record, Boston.

Manager, superintendent or designer. Age 30; English; married. Experienced in England and in this country. Mohairs, all classes of worsted suitings, plain and fancy dress goods. 3184, Textile World Record.

Superintendent and Designer in a woolen mill. Position wanted by a man, 39 years of age, single. Has worked on men's suitings, overcoatings, box cloth, cheviots, covert mixes made from wool, cotton and shoddy. First-class recommendations. 3871, Textile World Record.

Superintendent and Designer, or assistant superintendent or boss weaver in a woolen mill. Position wanted by a man 36 years of age, American, married. Worked on all kinds of woolen and worsted goods, also blankets. Understands all kinds of machinery, has worked in all departments of a mill. Good referencees. 3845, Textile World Record, Boston.

Agent, or Supt. and Designer. Position wanted by a man 40 years of age, married and American. Is experienced on fancy worsteds, woolen kerseys, thibets, overcoatings and dress goods. Is familiar with all kinds of woolen machinery. Good references. 3574, Textile World Record.

Assistant Superintendent, or Assistant Designer in a large woolen mill, or Assistant Superintendent and Designer in a medium sized woolen mill. Position wanted by a man 38 years of age, American, single. Worked on tourists' coatings, shirtings, dress goods, broadcloths, kerseys, etc. Good references. 4034, Textile World Record, Boston.

Assistant Superintendent and designer, or overseer of weaving. Position wanted by a man 37 years of age; married; American. Has worked on all classes of woolen and worsted goods, ladies' and men's wear, both fancy and piece dyes. Is familiar with Crompton & Knowles looms. Good references. 3605, Textile World Record, Boston, Mass.

Woolen Superintendent or designer. Familiar with all kinds of fancy worsteds, dress goods, men's wear, fancy cotton dress goods. Familiar with all kinds of American and English machinery. First-class references. English; age 40. Address 3111, Textile World Record.

Superintendent and Designer. Position wanted by a man 38 years of age; married; worked on men's wear fancy worsteds, cotton worsteds, overcoatings and dress goods. Good references. 3056, Textile World Record, Boston, Mass.

Superintendent and Designer in a woolen mill. Position wanted by a man 31 years of age, Scotch-American. Is familiar with woolens, worsteds, thibets, cotton warps, dress goods, broad cloth, cotton worsteds, tourist cloth. All kinds of woolen machines. Will not go West. Good references. 3944, Textile World Record.

Superintendent, assistant superintendent or assistant designer. Position wanted by a man 28 years of age, married, and American. Is experienced on all classes of woolen goods, and is familiar with Crompton & Knowles looms. Good references. 3591, Textile World Record, Boston, Mass.

KNITTERS.

Men Wanted.

We have several positions open for overseers of finishing departments in hosiery mills, also overseer of knitting that understands Raschel machines. For further information address Registry Bureau, care Textile World Record, Boston, Mass.

Overseer of Knitting. Position wanted by a man, 25 years of age, married. Worked on underwear, fancy knit goods, sweaters, toques, ladies' skirts and blouses. Familiar with Nye & Tredick, Stafford & Holt, Scott & Williams, and H. Burton & Company's machines. Good reference. 4526, Textile World Record, Boston, Mass.

Superintendent of Hosiery Mill or Boss Knitter of underwear or sweaters. Position wanted by a married man, 26 years of age, American. Has worked on all kinds of hosiery, except full fashioned. Also underwear, sweaters, toques, fancy leggings, gloves and mittens. Is familiar with all makes of seamless hosiery machines, Leighton and Lamb. Good reference. 3305, Textile World Record, Boston, Mass.

Superintendent of Knitting. A man with 27 years' experience running knitting factories on sweaters, cardigan and ladies' golf jackets, also gloves and mittens. Understands all makes of knitting and finishing machinery used in manufacturing these goods. 45 years of age. Good reference. 4521, Textile World Record, Boston, Mass.

Superintendent or Manager of Hosiery Mill. Position wanted by a man 37 years of age, married, American. Is experienced on woolen, worsted and cotton hosiery. Is familiar with all makes of knitting machinery, but prefers the Mayo, Acme or Standard. First-class references. 3650, Textile World Record, Boston, Mass.

Boss Knitter or second-hand in an underwear mill. Familiar with silk, worsted, cotton and mixed yarn of all kinds. Will not go West, South or to Canada. 32 years of age; American; married. 1819, Textile World Record, Boston, Mass.

Superintendent of Underwear or hosiery mill. Position wanted by a man 49 years of age, married, American. Has worked on men's, women's and children's underwear in flat, ribbed and full fashioned; also hosiery in cotton, wool and merino. Familiar with all makes of knitting machines from picker to finishing. Good references. 3993 Textile World Record.

Overseer of Underwear Knitting. Position wanted by a man 28 years of age, married, American. Worked on 20 to 22 gauge fleece-lined underwear and 24 gauge Balbriggan. Familiar with Tompkins Spring needle machines only. Good refererences. 4006 Textile World Record.

Superintendent of a Hosiery Mill. Position wanted by a man 49 years of age, American. Worked on all kinds of wool, worsted and cotton hosiery. Familiar with all kinds of machinery. Good references. 3075 Textile World Record.

Foreman or Fixer in Knitting Mill. Position wanted by a man 34 years of age, married, American. Worked on all classes of cotton hosiery. Familiar with Standard, Acme, Invincible, Geo. D. Mayo loopers, Hepworth ribbers, Ruth Brinton, Wildman machines. Good references. 3999 Textile World Record.

Overseer of Knitting. Position wanted by a man 30 years of age, single. Worked on fine and heavy weight union suits. Familiar with Crane's rib circular machines. Good references. Will not go to Canada. 3946, Textile World Record.

Manager of a Hosiery Mill. Familiar with woolen, worsted and cotton and full-fashioned seamless hosiery. 45 years old, American. First-class references. 1657, Textile World Record, Boston, Mass.

Superintendent of Knitting Mill. American, 28 years of age, with experience on flat wool and cotton, all wool sweaters, rib goods of wool, worsted cotton and cotton plaited. Understands nearly all kinds of machinery used in making these goods. 3348, Textile World Record.

DYERS.

Overseer of Dyeing. A man 46 years of age, married. Worked on knit underwear, woolens, yarns, etc. Familiar with all kinds of machinery. Good reference. 4511, Textile World Record, Boston, Mass.

Overseer of Dyeing. 48 years of age, American, married. Worked on raw stock, slubbing, yarns, piece dyes, indigo and hydrosulphate vats. Good reference. Could take a position at once. 4523, Textile World Record, Boston, Mass.

Overseer of Dyeing. 34 years of age, single. Has worked on serges, wool and worsted, thibets, cheviots, kerseys, cotton and wool raw stock, and cotton and worsted yarns. Is familiar with all makes of dyeing machinery. Good reference. Will not go West, South or Canada. 4519, Textile World Record, Boston, Mass.

Overseer of Dyeing. Position wanted by a man 32 years of age, married and American. Has worked on fancy worsted and woolens, piece dyes, carriage goods, wool and worsted dress goods, men's wear, raw stock, cotton, worsted and linen yarns. Is familiar with Klauder-Weldon dyeing machinery. Good references. 3584, Textile World Record, Boston, Mass.

Overseer of Dyeing. Position wanted by a man 37 years of age, married and American. Has worked on piece dyes, cross dyer on cotton and worsted, skein and stock. Is familiar with all kinds of dyeing machinery. Good references. 3572, Textile World Record, Boston, Mass.

Overseer of Dyeing. Position wanted by a man 44 years of age and Scotch. Has worked on wool and worsted yarns, slubbing, piece dyeing, cotton raw stock, long and short chain yarn, chain printing, felt, hosiery and knit goods. Is familiar with all kinds of dyeing machinery. Good references. 3520, Textile World Record, Boston, Mass.

Overseer of Dyeing. Position wanted by a man 40 years of age, married and American. Has worked on wool and cotton in stock, yarn and cloth, carpet yarns, Brussels, Wilton and ingrain, worsteds in skein and piece, and knit goods. Is familiar with Klauder-Weldon, Delehanty, and all stock and skein dyeing machinery. Good references. 3512, Textile World Record, Boston, Mass.

Overseer of Dyeing and bleaching. Position wanted by a man, 28 years of age, single, American. Has worked on cotton warp, short and long chain, raw stock, piece goods. Has had a wide experience on awnings tickings, cotton worsted suitings, flannels, ginghams and indigo dyeing. Familiar with the Klauder & Weldon and Delehanty machines and jig dyeing machines. Good reference. 3789, Textile World Record, Boston, Mass.

Overseer of Dyeing. Position wanted by a man, 45 years of age, Scotch, married. Has worked on raw stock, cotton and woolen goods, knit goods in the garment and in the roll. Familiar with all kinds of dyeing machinery used in the dyeing of knit goods. Prefers a position in New York State. Good reference. 3803, Textile World Record, Boston, Mass.

Overseer of Dyeing in a woolen mill. Position wanted by a man, 37 years of age, single, American. Has worked on piece dyes, raw stock, cotton, wool and shoddy, yarns, etc. Good reference. 3812, Textile World Record, Boston, Mass.

Overseer of Dyeing. Position wanted by a man 43 years of age; married; Scotch. Worked on cotton, wool and worsted dress goods, knitting yarns. Good reference from mills in Scotland where he has been employed as manager of dye and finishing works. 3456, Textile World Record.

Overseer of Dyeing or Second Hand. American; 25 years of age; worked on woolen piece dyes and raw stock and on different kinds of machinery used in dyeing. Would accept a position anywhere that would mean advancement. 3418, Textile World Record, Boston.

Overseer of Woolen Dyeing. American; 34 years of age; accustomed to broadcloths, kerseys, dress goods, raw stock, piece dyes and to all machinery used in his work. A1 man, with best of recommendations. 3180, Textile World Record.

MISCELLANEOUS

Master Mechanic or Chief Engineer. Married man, 40 years of age. Understands all makes of machinery used in a cotton or rolling mill. Understands electricity, steam engines and would go any place for a good position. Good reference. 4506, Textile World Record, Boston, Mass.

Sewing Machine Fixer. Position wanted by a married man 25 years of age. Worked on knit goods and linen toweling. Familiar with the Wheeler & Wilson, Singer, Wilcox & Gibbs, lock and chain stitch, button and buttonhole and Union Special machines. Could be employed at short notice. Good reference. 4525, Textile World Record, Boston, Mass.

Superintendent or Assistant Superintendent, boss weaver or designer in a silk mill. Has worked on silk ties, dress goods, fancy vestings and mohair linings. Is familiar with Crompton & Knowles looms. Would prefer New York or New Jersey states, but would accept a good position anywhere. Good reference. 4518, Textile World Record, Boston, Mass.

Young Man Wants a Position in a Cotton Yarn mill in Fall River or New Bedford. Has had experience in the shipping department and as receiving clerk. Would like a position where he could learn something about raw stock, in the carding or spinning room. Would work for reasonable wages. Good reference. 4524, Textile World Record, Boston, Mass.

Overseer of Cotton or Woolen Dressing. 47 years of age, married, American. Worked on all classes of woolen and cotton goods, both plain and fancy. Familiar with all makes of machines used in dressing departments in either a cotton or woolen mill. Good reference. 4509 Textile World Record, Boston, Mass.

Loom Fixer. Position wanted by a man 29 years of age, single, Swede. Has worked on all kinds of woolen goods, and is familiar with Knowles looms. First-class references. 3648, Textile World Record, Boston, Mass.

Bookkeeper in a Cotton Mill. Position wanted by a man 35 years of age, married, American. Good references. Will not go to Me., N. H., Vt., Pa., N. Y., N. J., West or Canada. 4003 Textile World Record.

Young Man, American, wants position as boss weaver or assistant superintendent. Has worked on fancy worsteds, cassimeres and cheviots. Can also design. 1712, Textile World Record.

Overseer of Spooling, warping, twisting, winding and dressing in a cotton mill. Position wanted by a man, 27 years of age, single, American. Has worked on all kinds of yarns, from 10s to 20s, white and colored. Familiar with all kinds of machines used in this department. Will go any place for a good position. Good reference. 3811, Textile World Record, Boston, Mass.

Overseer of Beaming, Spooling and Quilling. Position wanted by a man 40 years of age, married, an American. Worked on all kinds of cotton goods. Familiar with all kinds of machinery used in a beaming department. Good references. 3688, Textile World Record, Boston, Mass.

Card Grinder, 38 years of age; English; with experience in good mills. Worked on print cloth and on all makes of English cards. Will go anywhere for good position. Good references. 3426, Textile World Record.

Overseer of Dressing. Position wanted by a man 36 years of age, married. Also capable of taking charge of winding, spooling and twisting. Familiar with fancy worsteds, woolens, piece dyes, rain coatings and silk mixtures. Good references. 3948, Textile World Record.

Overseer of Back Filling or starching. Position wanted by a man, 38 years of age, married, American. Has worked on all kinds of cotton goods and understands all kinds of starching machinery. At present employed, but could accept a position at short notice. Will not go South without good inducements are offered. Good reference. 3932, Textile World Record.

To All A Joyous New Year

As the events of the year just closed pass in retrospection we feel truly grateful for what it has brought us. And it is with pleasure and sincere gratification that we wish both the friends of Wyandotte Textile Soda and those yet to become its friends, A Happy and Joyous New Year.

We esteem it a special privilege to serve the thousands of users of this soda. In thanking them for their patronage and good will we assure them it shall ever be our endeavor to maintain the same high state of perfection which has made the use of this soda so valuable.

Most heartily we trust the New Year will be the beginning of greater things and prove for you all, plentiful and liberal. Again we pledge ourselves as in the years past to be ever vigilant in those things that work for better conditions and more profitable returns to the mill man.

None Genuine except with a card bearing this Trade Mark

In Every Package.

The J. B. Ford Co., Wyandotte, Mich.

Sole Manufacturers

THIS SODA HAS BEEN AWARDED THE HIGHEST PRIZE WHEREVER EXHIBITED.

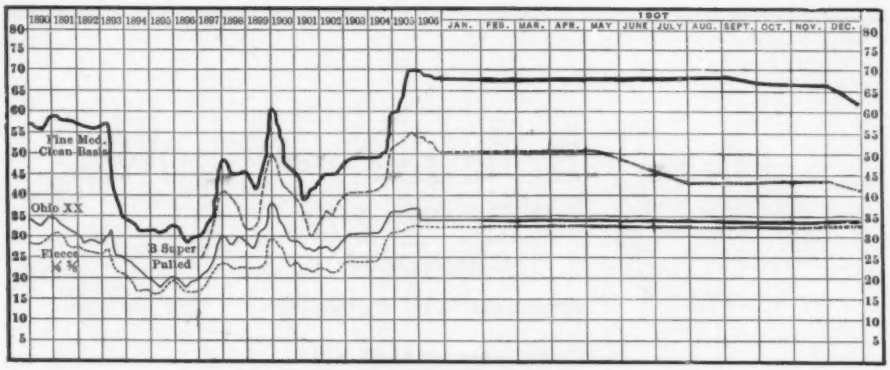


CHART SHOWING RANGES IN THE PRICE OF WOOL TO DATE.

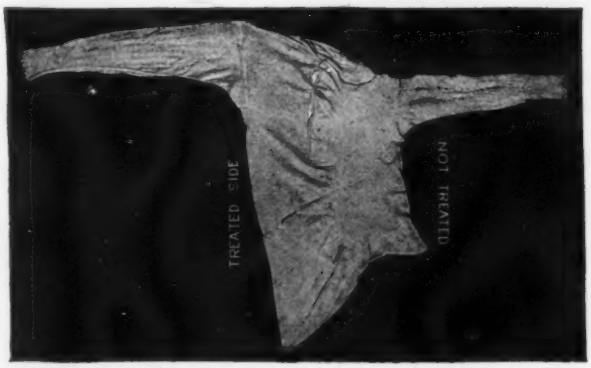
The Wool Market.

The depression in the goods market, resulting in curtailment of production by the mills, has been followed by a corresponding curtailment of business in buying wool. Not only have sales been small, but enquiries have also been small in number and importance. Here and there an occasional holder of wool has found it necessary to force a sale with the result that prices have been in such cases considerably below current quotations. While it is unmistakably a buyer's market the stocks of wool are small and the bulk of them are in the possession of those who are financially well able to hold them. While the prospect for the future does not encourage a belief in any advance in prices, the statistical position of the staple is such that any improvement in the demand for goods will be promptly reflected in the wool market.

*Pennsylvania, Gladwyn. As reported last week, the business conducted by Booth & Bro. has been incorporated with capital of $50,000. The new firm name is Booth & Bro., Inc. Wm. Booth is pres.; Thos. H. Barker, vice pres. and treas.; and W. A. L. Barker, sec. Woolen yarns are manufactured on 8 sets.

*Wisconsin, Milwaukee. The knitting machinery removed from the branch plant of the Kalamazoo Knitting Company, Inc., at Janesville, owing to inability to secure suitable help, is being installed in the main plant at this place and will be operated shortly. Woolen gloves, mittens and seamless cotton hosiery is manufactured. Carl Freschel is president and buyer.

TRADE IS DEMANDING NON-SHRINKABLE WOOL



BECAUSE THE

FORWOOL Never-Shrink Process

Registered

IS WORKING A REVOLUTION

GET IN LINE

For information write

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REAL ESTATE TRUST BUILDING
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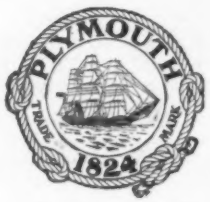
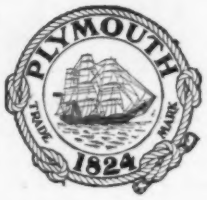


By far the most efficient and cheapest means of power transmission



Plymouth Manila Rope Drives

At 2-5 the cost for installation as compared with leather belting, rope drives are far more effective, safer, transmit large or small horse power in any direction, provide for future growth and greatly lessen maintenance expense.

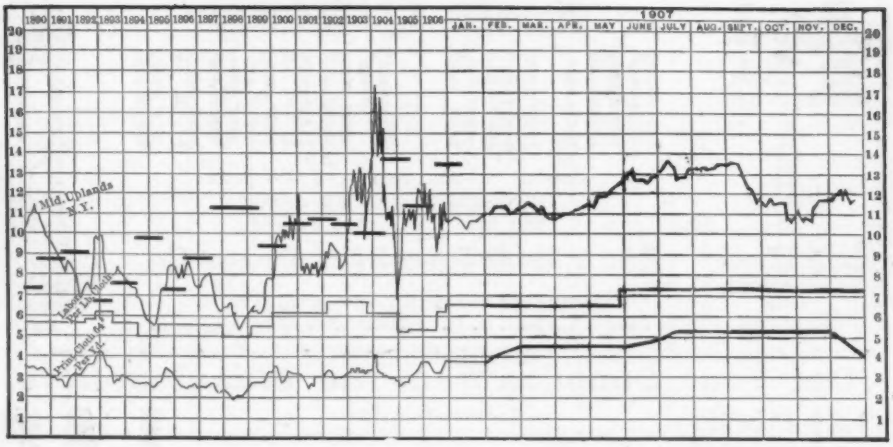
Plymouth Rope Drives by their absence of slip, steadiness, freedom from electrical disturbances, great durability and low cost make the ideal drive for textile mills.

Put your transmission problems up to us. Our long experience in manufacturing, installing and using rope drives is at your service.

Send for our booklet on "Rope Driving."

Plymouth Cordage Co.

No. Plymouth, Mass.


1890 1891 1892 1893 1894 1895 1896 1897 1898 1899 1900 1901 1902 1903 1904 1905 1906
1907
JAN. FEB. MAR. APR. MAY JUNE JULY AUG. SEPT. OCT. NOV. DEC.
Mid. Uplands N.Y.
Low Mid. Uplands N.Y.
Low Middling N.Y.

The short, heavy, horizontal lines indicate the size of the cotton crops in millions of bales.
CHART SHOWING RANGE IN THE PRICE OF COTTON TO DATE.

The Cotton Market.

An increase of the movement of cotton into sight, the curtailment of production by American mills and the financial stringency are the principal bear factors in the cotton market; these have been met by the certainty that the present crop is to be of but moderate size, small crops in India and Egypt, and a continuance of the record consumption of cotton by foreign mills. The result has been fairly steady prices and an unwillingness on the part of either bulls or bears to operate either in the spot or future markets. The movement into sight from Sept. 1 to Dec. 27 is estimated by the Chronicle for a series of years as follows:

1907, Dec. 27	6,348,158 bales
1906, Dec. 28	7,740,632 bales
1905, Dec 29	6,895,550 bales
1904, Dec. 30	7,801,153 bales
1903, Jan. 1	6,949,217 bales
1902, Jan. 2	6,742,154 bales

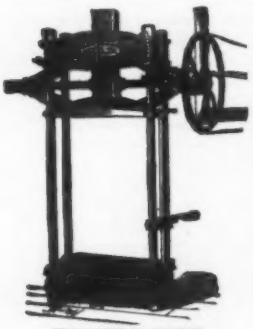
It will be seen from these figures that, in spite of the spurt in the movement into sight during the past few weeks, the total for the season is the lowest for the six years and is 1,400,000 bales below the amount for last year. The world's visible stock on Dec. 27 is estimated by the same authority at 4,705,720 bales, as compared with 5,200,931 bales on same date in 1906, 5,314,437 bales in 1905, and 4,702,751 bales in 1904.

Oregon, Portland. It is reported that Whiting & Rountree, real estate agents, have been commissioned by eastern parties to secure a building suitable for the manufacture of bags and bagging material and it is stated further that if suitable quarters cannot be leased a plant will be built. The names of interested parties cannot be learned.

North Carolina, Charlotte. Sumner B. Sargent, who has been reported as interested in a new cotton mill, has bought the interest of Thomas J. Lillard, treasurer of the Fidelity Mfg. Co. It is stated that Mr. Sargent will proceed with the organization of the proposed new cotton mill as before.

South Carolina, Easley. A cotton mill to be controlled by members of the Farmer's Union is being agitated. Nothing definite has been accomplished.

WEIMAR BROS. MANUFACTURERS OF Cotton Mercerized Tapes,
SPOOL TAPES, BINDINGS AND NARROW FABRICS FOR UNDERWEAR AND OTHER TRADES.
Phone Connections. Works, 2046-48 Amber Street, PHILADELPHIA, PA.



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BOOMER & BOSCHERT

BALING PRESSES

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Hydraulic or Knuckle Joint
Any Size .. Any Power

Boomer & Boschert Press Co.

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HYDRAULIC.

Get Your Supplies from the Manufacturers.

EXCELSIOR WOOL OIL COMPOUND AND COTTON SOFTENER

Established 1841

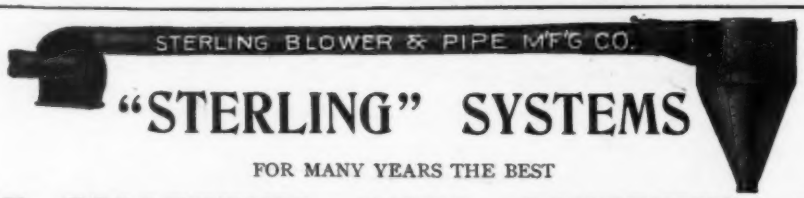
Burckhardt & Co.

Cincinnati, O.

The Excelsior Compounds are the best lubricating and softening products for wool, cotton, wool and cotton mixed. Eliminates the scouring process and effects large saving in time and soap. They will not gum in the cards.
Write for prices and particulars.

OLIVE OIL TALLOW SOAP

LARD OIL



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FOR MANY YEARS THE BEST

DUST COLLECTING, WOOL CONVEYING, ETC.

STERLING BLOWER & PIPE MFG. CO.

Write for "1907" Catalog.

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A Crosby Indicator

In the Hands of a Competent Man Will Increase the Efficiency of Your Plant and Cut Down Your Coal Bill. Faultless in Design. Perfect in Workmanship.

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TRADE MARK CROSBY

Pop Safety Valves
Pressure and Vacuum Gages
Water Relief Valves
Blow-off Valves
Rubber Pump Valves

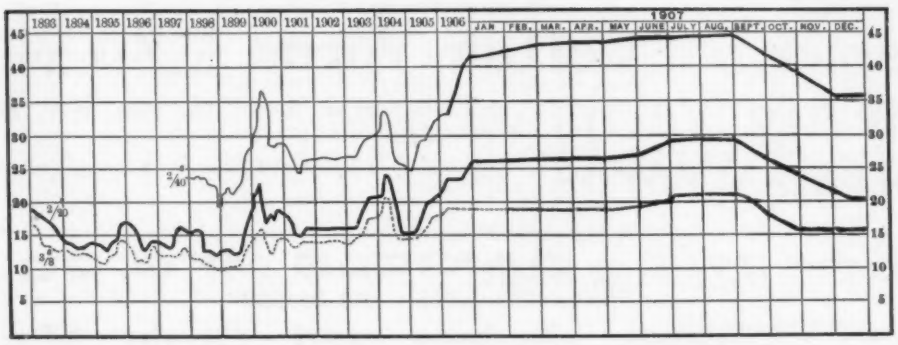
Recording Gages
Single Bell Chime Whistles
Feed Water Regulators
Lubricators—Oil Cups
Gage Glass, Water Gages, Etc.

CROSBY STEAM GAGE AND VALVE CO.

Stores:
BOSTON, NEW YORK, CHICAGO, LONDON

Office and Works:
BOSTON, MASS.

Yarn Department.



GRAPHIC CHART SHOWING RANGE IN THE PRICE OF COTTON YARN TO DATE.

The Cotton Yarn Market.

The yarn market has been dull and weak. Prices have touched new low water marks during December. There has been some business placed by users who considered that yarn was cheap today, but buyers with this idea will only talk at the lowest point that prices have reached.

Spinners have made a hard fight during the past few weeks to secure better prices, but with very little success. Cotton has held very firm in the South at an advance of about 1 1/2 cents per pound over the low price which was reached in November. This has compelled spinners to ask an advance price, and on account of their inability to get an adequate advance, a number of mills have shut down entirely and the majority of the mills have curtailed production. The prospect is a little better for January. It is our experience that manufacturers will want yarn during January; if not on new contracts, they will at least call in deliveries which have been held up on old orders.

Collections are still very unsatisfactory and the money situation seems still to be the dominant feature of the market. We believe the situation will be relieved considerably in January when jobbers begin to take goods the manufacturers are now holding for them.

We quote as follows:—

Eastern Cops.

6s	19¼
8s	19¾
10s	20¼
14s	21¼
16s	21¾
18s	22¾
20s	23¾
22s	24½
24s	25
26s	26
30s	27½
34s	28½
36s	31½
40s	33½

On cones, ¾c. more up to 14s; 1c. more from 15s to 22s; 1½c. from 23s to 35s, and 2c. above that.

Eastern Two-Ply Skeins, Carded Peeler.

12s	21
14s	21½
18s	23
20s	24½
24s	25½
26s	26
30s	27
36s	32
40s	39
45s	43
50s	48
55s	53
60s	58

Eastern Two-Ply Warps, Carded Peeler.

2/30s	27
2/36s	32
2/40s	39
2/45s	43
2/50s	49
2/60s	59

Egyptian Weaving Yarns.
Single Skeins Combed.

30s	45
36s	47
40s	49
45s	52
50s	56
55s	59
60s	66
70s	72

THE J. R. MONTGOMERY CO.,

Windsor Locks, Conn.

MANUFACTURERS OF

Mercerized Cotton Yarns Gives the High Silk-Like Lustre in Knit Goods and Woven Fabrics.

Novelty Yarns Boucle, Bourette and Spirals, in Cotton, Wool, Worsted, Mohair and Silk.

Cotton Warps on Beams, Jack Spools and Tubes. In Fancy, Twist, Colors and Printed.

GREENE & DANIELS MFG. CO.,

COMBED, CARDED AND GASSED

Yarns, Threads, Twines and Chain Warps.

DYE SULPHUR BLACKS DIRECT IN COPS, CONES OR TUBES.

Colored and Bleached Yarns Furnished in any manner desired by the trade.

Pawtucket, R. I.

MONUMENT MILLS,

Manufacturers of

White, Colored, Fancy and Double Twist

COTTON WARPS

HOUSATONIC, MASS.

4s to 60s.

The Merwin Paper Company

Hartford, Conn.

Press Papers and Fender Boards

Correspondence Solicited

Mills at Rainbow, Conn. Address Inquiries to Rainbow, Conn.

The Philadelphia Market.

Southern frame spun cones:—

7s and coarser	18
8s and 9s	18-18¼
10s	18½-19
12s	19-19½
14s	19½-20
16s	20½
18s	21
20s	21½
22s	22
24s	23
26s	24
30s	25
40s	36
50s	46

Southern high grade mule yarn:—

Cones.

10s	20
12s	20½
14s	21
16s	21¾
18s	22¼
20s and 22s	23¼
24s	24

Southern frame yarn, lower grades:—

6s and 8s	18
10s	18½

Eastern cones (high grade quality):—

10s	22
12s	22½
14s	23
16s	23¾
18s	24¼
20s and 22s	24¾-25

Skein yarn (mostly Southern):—

4s and 8s soft	17
10s and 12s	17½-18
14s to 20s	18-19
22s	19½
14/2	18
16/2	18½
20/2	19½
30/2	22
40/2	30
16/3 slack	18½
12/3 slack	18
8/3 carpet	17½
8/3 slack	17½
9/4 slack	17½

Warps (Southern):—

10s to 12s	18
14s	18
16s	18½
20s to 22s	18½-19½
26s	20
14/2	18½
16/2	19
20/2	20
24/2	21
30/2	22
40/2	31

JAMES E. MITCHELL CO., COMMISSION MERCHANTS.
Cotton Yarns
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122-124 Chestnut Street, PHILADELPHIA, PA.
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Brown Building, 185 Summer Street, BOSTON, MASS.
25 South Tryon Street, CHARLOTTE, N. C.

CATLIN & CO.,
Cotton Yarns.
345 Broadway, NEW YORK.
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COTTON AND WORSTED YARNS.
BOSTON. NEW YORK. PHILA.
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Fred Sternberg & Co.
530 Broadway, - NEW YORK.
MERCERIZED TURKEY RED GASSED } COTTON YARNS.

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SUCCESSOR TO
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SILK, WORSTED, WOOLEN YARNS COTTON AND MOHAIR
Polished Threads and Tinsel. Artificial or Wood Silk.
Mercerized, Turkey Red, Fine Gassed Yarns.
SILK MILL, BOONVILLE, N. Y.

High Grade Hosiery Yarn
White and Colors. All Numbers. Sewing Twines on Cones and Tubes
SPECIALTIES IN WEAVING YARN
Black and White. Double and Twist for Woolen Trade.
CANNON MILLS 53-5 Worth Street, New York
Philadelphia Office, 205-7 Chestnut St.

C. MOORE & CO.,
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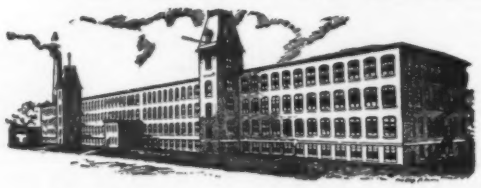
TWINES, THREADS AND YARNS
Jacquard Harness Twines of all kinds
on hand and made to order.
S. W. Cor. Fifth and Market Sts., Phila.

S. T. Crocker, Pres. W. F. Stiles, Treas.

ORSWELL MILLS



Fitchburg, Mass.

Capacity, 45,000 Spindles.

HIGH GRADE YARNS

From Egyptian and Peeler Cottons, Carded or Combed, in Chains and Skeins, on Balls, Beams, Spools, Cops, Cones, Tubes, Single or Twisted.

JENCKES SPINNING CO.

Main Office and Mills at Pawtucket, Rhode Island.

Carded and Combed Cotton Yarns for Weavers and Knitters.

Double and Twist Yarns for Woolen Trade.

Philadelphia Office, Mariner and Merchant Building, Third and Chestnut Streets.

GRANT YARN CO.,

COMBED AND CARDED COTTON.

YARNS 40's and above. AND

FITCHBURG, MASS. **WARPS**

Ballou Yarn Co.

PROVIDENCE, R. I.

Harness and Seine Twines and other Job Gassing, Winding, etc. All Numbers

GASSED YARN SPECIALTIES

EDDY & STREET,

Cotton, Woolen

Yarns and Braids

Worsted, Spun Silk.

PROVIDENCE, R. I.

THE RAVINE MILLS CO.

MANUFACTURERS OF

COTTON WARPS

In White and Colors on Beams and Jackspools

Specialty of Fast Black Twist on Jackspools.

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C. M. BLAISDELL, Pres. and Treas. G. A. BLAISDELL, Vice-Pres. and Sec'y.

Established 1860—Incorporated 1893.

THE S. BLAISDELL, JR., CO.,

COTTON, EGYPTIAN PERUVIAN

American Long Staple a Specialty. Shipments direct to mill from Egypt, Peru and all American Southern Points.

CHICOPEE, MASS.

Cotton Waste Purchased on Yearly Contract from Mills.

Reels for Cotton WOOLEN AND WORSTED

Patented Hosiery Winders, Cop Winders and Spoolers.

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2124 to 2130 East York St., PHILADELPHIA, PA.

Lowell Crayons Meet the requirements of any cotton, woolen or worsted mill.

May we send samples? 15 colors and white.

Lowell Crayon Co., Original Manufacturers Lowell, Mass.

Trade Mark on every box.

ESTABLISHED 1880.

New York Silk Conditioning Works

138-140-142 Spring Street, New York.

Testing of

Silk, Wool and all Textile Fabrics

Mixed colored yarns (mock twist, half colors):—

6s to 10s	20-21
12s to 14s	21½-23
16s to 18s	24-25

Mock Egyptian, 2c. advance over white.

Egyptian, 7 to 8c. above best quality white.

New York, Oswego. Chas. W. Severson has bought the controlling interest in the Oswego Knitting Company from F. C. Osterhout, O. S. Osterhout, and F. M. Breed. F. C. Osterhout will, it is reported, start a new plant for the manufacture of glove linings. It is reported that Mr. Severson intends doubling the capacity of the Oswego Knitting Company within a short time.

*New York, Port Leyden. The report, largely circulated in some quarters, that John C. Fogarty had retired from business is incorrect. We have reported from time to time the progress on Mr. Fogarty's new mill at Port Leyden and are now advised that the plant is about ready to place goods on the market. Critten, Clift & Co., New York City, will be the selling agents. Children's knitted waists, corset covers and other specialties are the product.

*New York, Schaghticoke. The assets of the bankrupt Schaghticoke Woolen Mill will be sold January 24 for the benefit of creditors. It is understood that plans are already in preparation for reorganizing the company and starting up the mill.

New York, Waterloo. The report that the Waterloo Woolen Mfg. Company is considering plans for a new dye house is incorrect.

Pennsylvania, Denver. J. H. Gerhart, who has been reported as about to establish a hosiery mill at this place, advises us that nothing will be done about the project for some time.

Pennsylvania, Doylestown. Wm. T. Westerman, manager of the Ontario Spinning Co., Philadelphia, and receiver of the Doylestown Hosiery Mills, is dyeing and finishing the hosiery on hand preparatory to closing the plant. It is reported that a new company will take over the plant as soon as possible.

*Pennsylvania, Philadelphia. The National Dyeing & Finishing Co., which was granted a charter in July, has leased the Union Dyeing Co.'s old plant in the Bromley Mill Bldg.

Pennsylvania, Philadelphia. The Landenberger Manufacturing Co., Howard and Columbia Ave., manufacturers of dress goods on 80 broad looms, are arranging for the running of their mill to its fullest capacity in anticipation of a large rush for goods after the first of the year.

Pennsylvania, Philadelphia. The Charlotte Dye Works, of which Edward Kagermann is the proprietor, located at Mercer, Westmoreland and Almond Streets, where they dye fine cotton, woolen and worsted skein yarns and hosiery, are very busy. They have recently issued a beautiful calendar which they are sending out to their customers and no doubt would be pleased to forward to anyone asking for same.

LINEN YARN IMPORTER.
HUGHES FAWCETT, 115 Franklin Street, NEW YORK.
Flax, Hemp and Jute Line and Tow Yarns,
For Weaving Purposes.
Linen Jacquard Harness Twines,
Fine Cotton Harness and Heddle Twines,
For Cotton, Silk, Woolen and Carpet Manufacturers.
Correspondence solicited. Samples promptly furnished.

DUNCAN & YOUNGS
95 Worth Street, NEW YORK
Practical Manufacturers of
YARNS, THREADS, TWINES, CORDS, ROPE
AND MILL SUPPLIES
Anything in the line you cannot get anywhere else apply to us.

Mercerized and Plain
Skein, Warps, Cones, Cops, Tubes
COTTON YARNS
426 and 428 Market St., Phila.
Theo. H. Strouse & Co.

FRANK A. TIERNEY,
TOPS, NOILS, ROVINGS, YARNS.
Wool, Silk, Mohair, Camels Hair, Ramie.
Garnetted Stocks
Silk also Ramie Tops and Noils, Ramie, Silk, and Silk Noil Yarns,
Special Textile Fibres and Novelties.
Wool Exchange Bldg., 260 West Broadway, New York.

A Book for Designers and Weavers.

MANUAL OF WEAVE CONSTRUCTION,

By IVO KASTANEK,

One of the Leading Authorities on this Subject in Europe.

Translated and Arranged for American Practice by Samuel S. Dale.

In this book all the foundation and derivative weaves for harness looms are systematically classified and explained.

The weaves are divided into three general classes, plain, twill and satin. Under each of these divisions are given rules for constructing derivative weaves, which are illustrated with over Five Hundred Drafts, Diagrams and illustrations of cloth samples.

For self-instruction the workers in the mill find it of great value and as a book of reference it is equally well adapted for the practical weaver, designer and the superintendent.

There are over Five Hundred Illustrations and Diagrams, many showing the cloth with weave construction.

Over One Hundred Pages. Handsomely Bound in Green Cloth and Gold. Price, $1.00.

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144 Congress St., Boston.

Pocasset Worsted Company,

WORSTED YARNS

IN THE GRAY.

Mills at Thornton, R. I.

Office 100 Boylston St., Boston, Mass.

French System. Bradford System.

B. F. BOYER CO.,

MANUFACTURERS OF

WORSTED AND WOOLEN YARNS,

Office and Mill, River Ave. and Marlton St. CAMDEN, N. J.

THE MALCOLM MILLS CO.,

MANUFACTURERS OF

FANCY YARNS and POLISHED THREADS.

Offices: 229 Chestnut St., Philadelphia.

Mills: Frankford, Pa.

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Manufacturers of

Silk, Cotton and Mercerized Narrow Fabrics

SPOOL TAPES A SPECIALTY.

Telephone Connection. Office and Mill, Allegheny Ave. and Emerald St., PHILADELPHIA.

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RICHARD CAMPION.

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Eaton Rapids Woolen Mills,

EATON RAPIDS, MICH.

Bradford System French System

STEPHENSON & CO.

Worsted and Woolen Yarns

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Manufacturers of

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CHELTENHAM, PENNA.

Bell Telephone, 235-D Cheltenham

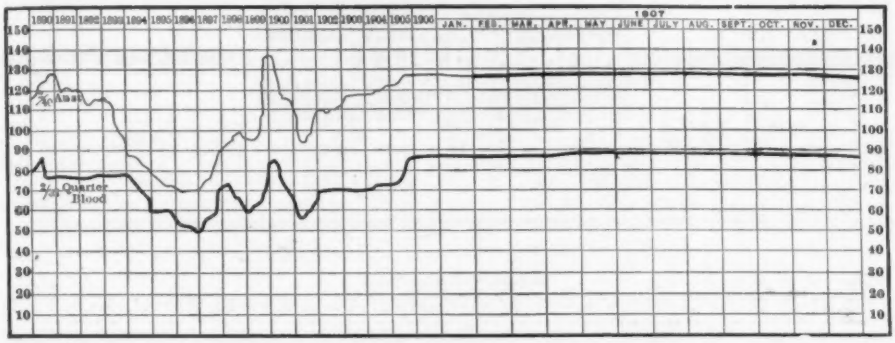


CHART SHOWING RANGES OF PRICE OF WORSTED YARNS.

The Woolen and Worsted Yarn Market.

The holiday season, which is now on, has affected the worsted yarn business to such an extent that there has been very little buying. Manufacturers have taken advantage of this time to close down their mills until after the first of the year. Almost all of them are of the opinion that business will be much better then. They contemplate running the mills full time and, in many instances, to their full capacity.

In the men's wear trade buyers are not yet ready to place orders until after the first of the year, and the mills are reluctant to open up their lines on account of this feeling. The trade in general is expecting lower prices which, in some cases, are materializing. Many of the manufacturing clothiers, it is said, have practically shut down their plants, having had so many cancellations and not knowing whether orders, after being taken, will stand or whether the goods will be thrown back on their hands. The only trade reported as buying fall goods are manufacturing jobbers and they, of course, are only buying sample lengths and sample pieces. It is the general opinion that the business on men's wear for the coming fall will be done in January and February.

Manufacturers of rain cloths have their lines ready, but are held back by their selling agents who are awaiting developments. It is expected that after January 1st the buyers will get busy and place orders for this line of goods. The slow demand for this quality of yarn has had a tendency to keep the price down and manufacturers are able to secure yarns for these cloths at the old price.

There has been more or less demand and inquiries from knitters for samples and there has been some contracting for yarns for next season. The manufacturers, however, seem to think that yarns will not be any higher and it will be another hand-to-mouth season. Western knitters, it is reported, are still buying and business from this quarter is fair. There has been quite a little contracting for next season's yarns among the Eastern knitters. The mills, however, are mostly working on samples, not having received any orders of any account from the jobbing trade which is late in buying. There seems to be an impression among spinners that there will be a big demand for oxford yarns as in the past season. Seventy-five per cent. of the mills are asking for this line of yarns, with the sweater trade asking for heavy numbers.

The bathing suit trade is very busy with prospects good for a large business in this line.

BRADFORD YARN.

2/12 to 2/16 low common	72½-75½
2/26 to 2/28 common	75-76
2/12 to 2/20 1/4 blood	80-82½
2/26 to 2/28 1/4 blood	82½-85
2/32 1/4 blood	87½-90
2/20 3/8 blood	90-92½
2/26 3/8 blood	95-97½
2/36 3/8 blood	97½-1.00
2/40 1/2 blood	1.15
2/40 delaine	1.21-1.22½
2/50 delaine	1.27½
2/40 Australian	1.30
2/50 Australian	1.37½
2/60 Australian	1.50
2/24 lustre	85
2/28 lustre	85-90
2/30 and 3/32 lustre	90-92½
2/36 lustre	95-1.00
1/24 worsted and 80s single cotton for raincloths	1.00-1.05
1/24 worsted and 120s single cotton for raincloths	1.15-1.20

FRENCH SPUN YARN.

1/20 1/4 blood	85-87½
1/20 high 1/4	93-95
1/20 3/8 blood	1.00-1.02½
1/20 3/8 blood	1.00-1.02½
1/20 high 3/8	1.05-1.07½
1/30 high 1/4 blood	95-97½

TRADE MARK REGISTERED IN
NON-FLUID OILS
UNITED STATES PATENT OFFICE

Lubricate without the aid of heat. This is a most important point. Greases *cannot* begin to feed until they have been melted by *frictional* heat in the bearings. This friction is invariably measurable on the coal pile.

Non-Fluid Oils feed without the aid of heat, the instant the shaft begins to revolve in its bearing. They *reduce* friction—never *produce* it.

It will pay you to adopt NON-FLUID OILS; they are cleaner and better than fluid oils—more economical than greases.

SAMPLES FREE.

New York & New Jersey Lubricant Co., 14-16 Church Street, New York City.

1/30 3/8 blood	1.05-1.07½
1/30 1/2 blood	1.10-1.12½
1/40 1/2 blood	1.12½-1.15
2/50 1/2 blood	1.30-1.32
1/50 delaine	1.22½-1.25
1/40 Australian	1.32½-1.35
1/50 Australian	1.37½-1.40
1/60 Fine Australian	1.40-1.45
1/70 Fine Australian	1.45-1.50

*Pennsylvania, York. Receivers of the York Silk Mfg. Co. have been authorized to borrow $50,000 on receivers' certificates to be used in the operation of the plant. An attempt will be made to start the mills next week and continue them in operation until the stock in process is run out.

Tennessee, Maryville. The Maryville Hosiery Mills, making seamless half hose and operating 25 latch needle knitting machines, will be incorporated Jan. 1.

*Utah, Springville. There is a report that the Progress Spinning and Knitting Mills will file articles of incorporation with capital of $100,000. The company will take over the plant of the Western Woolen Mills, the consideration being $25,000 worth of stock in the new concern. J. M. West will be pres.; H. M. Dougall, vice pres.; and C. H. Thorstensen, sec. and treas.

*Vermont, Bellows Falls. Residents of Bellows Falls have subscribed $1,780 to the stock of the Oxford Linen Co. and it is reported that it has been decided to lease the Casein plant and begin manufacturing at an early date. No information given about this project is definite.

Vermont, Bennington. It is stated that H. C. Lindloff contemplates starting a plant for the manufacture of ladies' and children's sweaters.

Vermont, Ludlow. The Board of Trade is in correspondence with a knit goods manufacturer employing 100 hands, who desires to move his plant to this city. The name of the manufacturer cannot be learned at this time.

Vermont, Saxton's River. The Saxton's River Woolen Mills are being operated by Henry Melville, receiver, as instructed by the court. As previously reported, Louis Rittenburg, prop., has filed a petition in bankruptcy.

WILLIAM B. CHARLES,
Cotton Yarns, Cotton Cloth, Silesia, Sateens,
For the Underwear Trade.
AMSTERDAM, N. Y.
Boston Office, 200 Summer St.

EDWIN F. SCHOFIELD,
ALL GRADES
PULLED AND FLEECE WOOLS
FOREIGN NOILS, CARPET WOOLS.
COTTON WASTE.
Mariner and Merchant Building,
3d and Chestnut Streets, Philadelphia, Pa.

JOSEPH M. ADAMS CO.
WOOLEN YARNS,
Carpet Backing and Rug Yarns a Specialty.
ARCOLA MILLS,
Main St., foot of Centre St., Manayunk, Philadelphia.

Knitting and Weaving YARNS.
Cones, Cops, Warps, Skeins,
Single, Double, Three-Ply, etc.
Peeler, Egyptian, Mixed Colors.
Large Assortment.
EDWARD S. HYDE,
226 CHESTNUT STREET,
Philadelphia, Pa.

CHENEY BROTHERS

Silk Manufacturers. So. Manchester, Conn.

Trams, Organzine and Spun Silks in the hank, or on spools and cones for woolen manufacturers.

Silks for electrical uses, insulation and special purposes made to order.

Knitting Silks, Ribbons and Piece Goods for Trimming Knit Goods.

Dress Silks, Satins, Linings, Printed Pongees, Foulards and Decorative Silks; Upholstery Goods, Ribbons, Sashes, Plushes and Velvets.

WILLIAM RYLE & CO.,

Foreign and Domestic

Spun Silk Yarns and Noils.

Domestic Thrown Silk of every description. Fine Pure Dye Silks for the woolen trade a specialty. Importers of European and Asiatic Raw Silk.

54 Howard St., cor. Mercer St., NEW YORK.

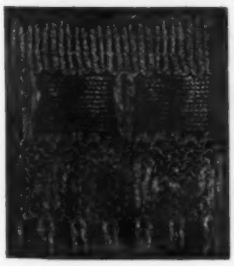
SAUQUOIT SILK MFG. CO.,

INSULATING AND BRAIDING SILKS.

ORGANZINE, TRAM & HOSIERY SILKS.

Fast Dye Organzines for Woolen Manufacturers a Specialty.

Mills: Bethlehem, Pa., Phila., Pa., Scranton, Pa. New York Representatives, Wm. Ryle & Co., 54 Howard St.—Phila. Office, 4015 Clarissa St., Nicetown.—Chicago Office, 210 Monroe St.—Boston Office, 78 Chauncy St.



GEORGE W. CHAPIN,

BRAIDS Cotton, Worsted, Mercerized, Cotton and Silk Twilled. **TAPES** Common, Twilled, Superfine and Plain 13 to 338, white and colors on spools.

YARNS Cops, Skeins, Warps, Tubes and Cones. **THREADS** on Spools, Tubes, Cones, Unbleached Bleached and Colors for Manufacturers' use.

CROCHET LACE EDGINGS Latest Styles in Pant Laces.

229 Church Street 231 . . PHILADELPHIA

Hundreds of new mills
Thousands of changes reported

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Official
American Textile Directory

1907-1908 Edition

Compiled by the Textile World Record.

This directory has many features *not found in any other.* Its accuracy, convenient arrangement and completeness make it well nigh indispensable to all business houses desiring to reach the textile mills by mail or by traveling men. Over 13,000 different concerns listed.

19 Textile Maps showing cities and towns where textile establishments are located

A complete Directory of the Mills including Cotton, Woolen, Knitting, Silk, Flax and Jute Mills of the United States, Canada and Mexico together with the Dyeing and Finishing Works, Bleacheries, Print Works and other Textile Establishments, with full information about each one.

Many other features of great value including Yarn Trade Index, Mills with Worsted Machinery, Textile Mills in Mexico, Builders of Textile Machinery and Dealers in Mill Supplies, Dealers and Brokers in Wool, Cotton, Shoddy, and Extracts, Wholesale Rag Dealers, Selling Agents and Dry Goods Commission Houses, Manufacturing Clothiers, Suit and Cloak Manufacturers, Etc., Etc.

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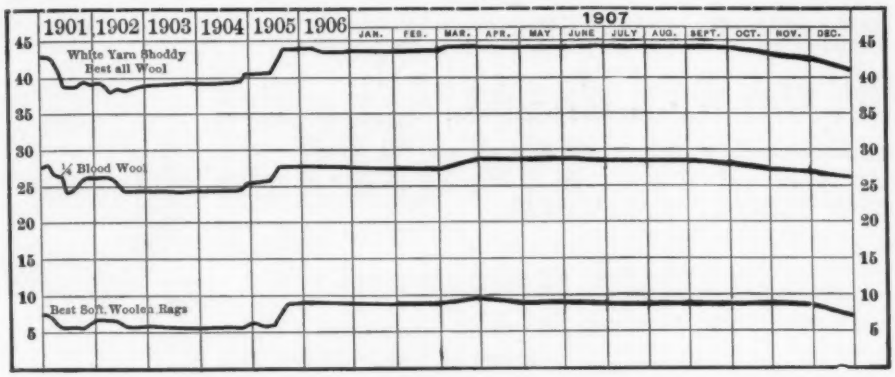

CHART, SHOWING RANGE OF PRICES OF SHODDY, RAGS AND NOIL.

The Rag and Shoddy Market.

A small hand-to-mouth business has been done in rags and shoddy, with the indications pointing to some improvement. The heavy weight season has not brought its accustomed volume of purchases by the mills, and there are not a few dealers who believe that the average will be restored before the season closes. Prices have varied but little and efforts to secure stock under ruling quotations have generally failed. Wool waste has been in slight demand with prices weak.

SHODDIES AND EXTRACTS.

White yarn, best all wool	44-46
White knit, all wool, best fine	34-39
White knit, No. 2	30-34
Light yarn, extra fine	30-35
New pure indigo blue	28

Merino.

Fine light, all wool	24-27
Medium light, all wool	15-17
Fine black, all wool	24-27
Fine dark, all wool, best grade	20-24
Medium dark, all wool, No. 2	16-18
Red knit stock, strictly all wool	20-23
Red flannel, all wool	22-24
Dark blue for hosiery, strictly all wool, No. 1	20-22
Dark blue for hosiery, not all wool, No. 2,	15-17

WOOLEN RAGS.

Fine merchant tailors	10-12
Choice light colors	15-18
Browns	12-13
Blacks	10-12
Fine blues, plain	9-10
Fine dark	10-12
Medium dark	7-8

Worsteds.

Blue	16-18
Black	20-23

Serges.

New black	15-17
New blue	14-16½

Flannels.

New scarlet	19-20¼
New blue	15-16
Cloakings	3-4

SOFTS AND KNIT STOCK.

Soft woolens, best	5½-6½
Old white flannels	20-22
Old red flannels	13-14
Old blue flannels	7½-9
Old plaids	8-8½
White stockings	20-23
White hood stock	16-18
Clear hoods	9½-10½
Blue stockings	9½
Fancy stockings, No. 1	10
Gray stockings	10-11
Black stockings	8-10
Knit stock comforters	7-9
Red knit	13-14
Light gray knit	10-11
New light fancies	14
New fancies	10-12½

Merinos.

Light, fine	16-17
Light, coarse	6-7
Fine, dark	12-13
Coarse, dark	4-5½
Blue	10-12
Black	13-14

FLOCKS.

Shear, fine white, all wool	9-12
Fine indigo blue, all wool	6-7
Fine black and blue, all wool	6-7
Fine dark, all wool	3-4½
Gig, fine, all wool	2-3½
No. 1 black, all wool cut	5½-9½

COTTON WASTE.

No. 1 Spinners	11-12½
Machine Cop	7-7¼
No. 1 Cop	7¾

WILLIAM B. CHARLES,

Cotton and Wool Wastes

Amsterdam, N. Y., U. S. A.

COTTON YARNS.

Contracts made with Cotton and Woolen Mills for Yearly Waste Production. Correspondence solicited. Shepperson's Code, 1878. Cable Address "Charles."

Boston Office: 200 Summer Street.

SHODDY W. H. H. SLACK & BRO. SPRINGFIELD, VT.

Established 1871 **FLOCKS**

The Cotton Manual

By J. T. Broadbent.

of the Bradford-Durfee Textile School, Fall River, and formerly of the Mississippi Textile School.

This little Manual was prepared with the idea of telling briefly, but comprehensively, the things about the cotton fibre, its cultivation, and the ginning and marketing of the cotton crop, the different kinds of cotton, and other matters bearing on raw cotton, such as the average student or person connected with cotton manufacturing or the sale of cotton goods, wants to know.

There are excellent chapters on cotton baling, describing the different kinds of bales and baling processes, and on the opening and mixing of cotton in the mill, with account of different machines employed, and improved methods of mixing.

The book contains about 100 pages with 20 illustrations, and should be in the possession of every person having to do with cotton in any state, from the seed to the retail purchaser.

Price 75 Cents.

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LORD & NAGLE COMPANY

144 Congress Street, - - - Boston, Mass.

Chemische Aniline Works

Manufacturers of

Anthracin & Coal Tar Products

24-26 Stone Street

New York

No. 1 Card	10½-12
No. 2 Card	8-10
No. 1 Oily Card	5½
No. 2 Oily Card	3½
Peeler Combing	12½-13
Egyptian Combing	11½-13
No. 1 Linters	5
No. 2 Linters	4¾-5
Woven White Clips	6
Woven Colored Clips	3-3½

Dyestuffs and Chemicals.

Acids.

Acetic, 100 lbs.	2.60-3.00
Citric, domestic	50-52½
Oxalic	8-8¼
Sulphuric, 66 deg., 100 lbs.	1.00-1.50
Muriatic, 18 deg.	1.10-1.70
Tartaric crystals	28-29¼

Miscellaneous Chemicals and Dyestuffs.

Acetate of lime, gray, 100 lbs.	2.50-2.60
Alum, lump	1.70-1.85
ground	1.85-2.00
powdered	3.00-3.25
Aqua ammonia, 26 deg.	4¾-5¾
Ammoniac, sal., gray	6-7
Borax, bbls.	6-6¼
Brimstone, crude, ton	22.50
Copperas	60-75
Cream tartar, crystals	23¼-23½
Fuller's earth, powdered, ton	18.00-22.50
Glauber's salt	50-65
Potash, chlorate, crystals	9-9½
powdered	9-10
carbonate	4½-5½
Soda, bicarbonate	1.62½-1.72½
Soda, caustic, domestic, 60 per cent.	1.85-1.95
Sal., American	75-85
Vitriol, blue	5-5½
Acetate of soda	4½-5¾
Acid, picric, best crystals	25-27
tannic, commercial	35-40
Albumen, egg	60-70
blood	22-30
Alizarine, red	16
Aniline, oil	12
salt crystals	10
Bichromate of potash, American	8½-9
Bichromate of soda	7-7½
Bisulphite of soda	1-2
Cutch, mat	5-6
Dextrine, imported potato	6-6½
Divi-divi, ton	40.00-60.00
Fustic	1¼
Gambier	5-6
Hypo. of soda	1.50-1.75
Indigo, Bengal, low grade	55-60
medium	60-65
high grade	75-90
Kurpahs	50-60
Guatemala	50-70
Manila	50-65
J. (Synthetic)	18-20
Logwood, crystals	11-14
liquid	3-9

FIRE, LIGHTNING, WINDSTORM.

The HOME INSURANCE COMPANY NEW YORK

Organized 1853. MAIN OFFICES, 56 CEDAR ST.

Cash Capital, $3,000,000.

ASSETS January 1st, 1906	$20,839,174
LIABILITIES (Including Capital)	13,430,818
NET SURPLUS OVER ALL LIABILITIES	7,408,355
Surplus as regards Policy-holders	10,408,355
Losses Paid Since Organization Over	105,000,000

Note amount of net surplus after providing for all San Francisco losses.

HOME Policy-holders everywhere have protection, which is sure, notwithstanding conflagrations anywhere.

IS prepared to entertain liberal lines on Sprinkler-Equipped and Modern Improved risks generally, having a special department for the consideration of such business.

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Madder, Dutch	12½-15
Muriate of tin, 33 degrees	11-12
54 degrees	17¼-18¼
Nitrate of iron, 47 degrees	4-4¼
Nutgalls, blue Aleppo	18-20¼
Phosphate of soda	2-2½
Prussiate of potash, yellow	16-17
Starch, corn, pearl	2½-3
potato	4-5
wheat	5-6
Tin crystals	20-25
Zinc dust	6-6¼

Pennsylvania, Phoenixville. A plant may be started here for the manufacture of shoe laces. It is understood that the Board of Trade is in correspondence with parties intending starting such an industry and this place is looked upon favorably.

Pennsylvania, Reading. The Globe Knitting Mills, 8th and Spring Sts., have changed their name to the Gloss Knitting Mills.

Virginia, Charlottesville, Frederick Ott of South Bethlehem, Pa., who was reported as interested with H. E. Mothener in the establishment of a silk plant at this place, advises us that nothing definite has been decided yet. Undoubtedly the project will go through.

*Virginia, Manchester. The plant formerly run by the Shields Hosiery Company and later taken over by E. Shields, is for sale. Manufacturing was discontinued the first of the year.

Virginia, Martinsville. The Roanoke Knitting Mills, Roanoke, Va., is reported as contemplating the erection of a new hosiery plant at this place. W. D. Equil, a representative of the Roanoke firm, has been in Martinsville looking for a desirable location and interesting prominent residents.

*Wisconsin, Appleton. Nothing definite has been given out regarding the project of C. A. Ricks of Macon, Ga., to establish a new knitting mill in this city. Mr. Ricks is endeavoring to interest capital in a plant for the manufacture of a fine grade of men's and women's hosiery.

Wisconsin, Fairchild. It is rumored that a party from Milwaukee, formerly connected with a knitting mill in that city, is negotiating for a site suitable for knit goods manufacturing at this place.

26th Year

1908 Edition now in preparation

American Directory of the Knitting Trade

The red covered book

What it contains

Full reports of every knitting mill in the United States and Canada, giving capitalization; names of the officers, including superintendent and buyer; kind of goods made; number of knitting machines, whether latch or spring needle; number of sewing machines; whether the mill dyes or bleaches or finishes; kind of power; number employed; selling agent; kind of yarn bought.

Special copyrighted maps of the mill districts, showing the cities and towns where there are knitting mills. It is so indexed that any town may be quickly found. This section of the directory is arranged alphabetically by states and towns.

Carefully classified index of manufacturers according to kind of goods made, all the manufacturers of various kinds of goods being grouped together.

Alphabetical index of manufacturers, giving the page number where full report of mills is to be had.

List of dyers, bleachers, finishers, printers, etc., making a specialty of knit goods work.

Manufacturers' selling agents and commission merchants handling knit goods; the name of the person in charge of the knit goods department is given, and when a concern is sole agent or special selling agent for certain mills the names of the mill sold for follow the agents names.

List of the jobbers of knit goods, telling the kind of goods handled and the name of the buyer, with the New York address.

Department stores and large retailers handling knit goods, with the names of the knit goods buyers and the address of the New York office.

An index of machinery and supplies used in the manufacture of knit goods, also yarn dealers supplying knitting yarns.

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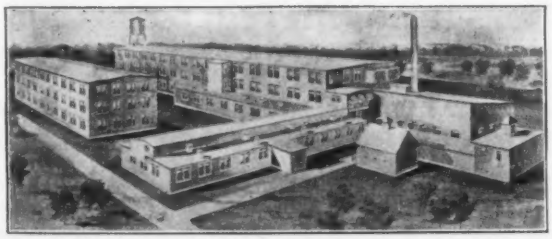

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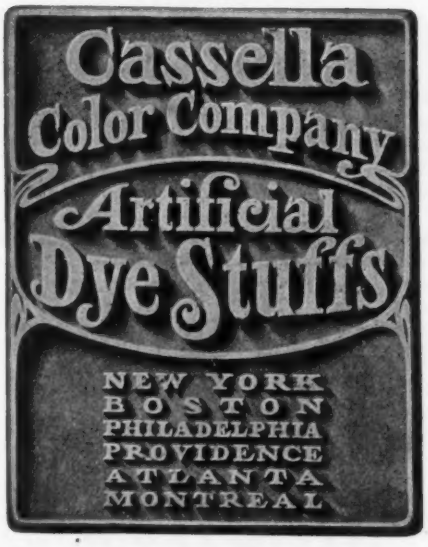

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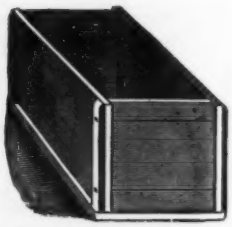

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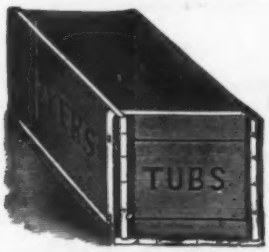

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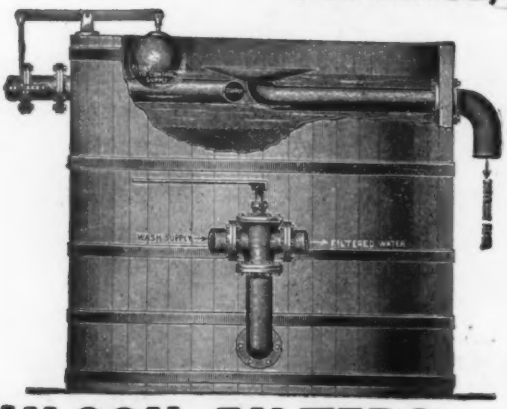

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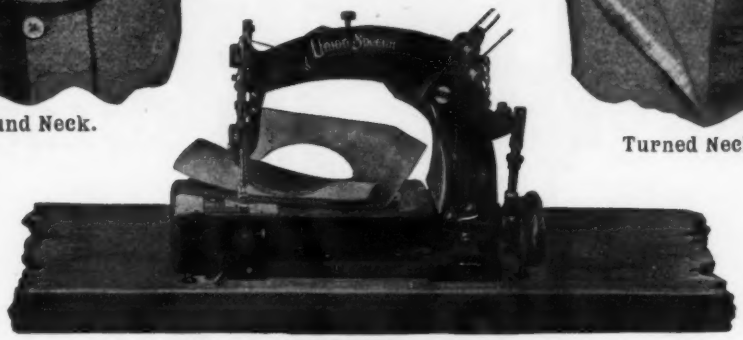

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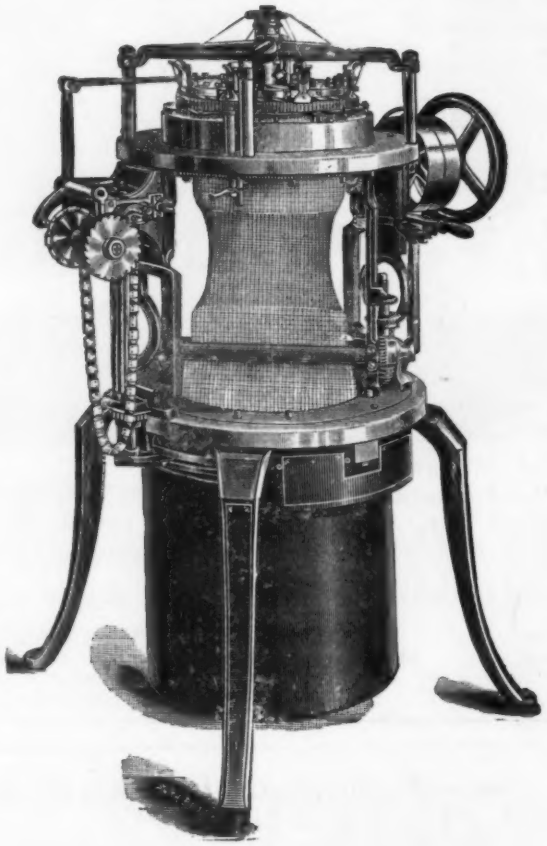

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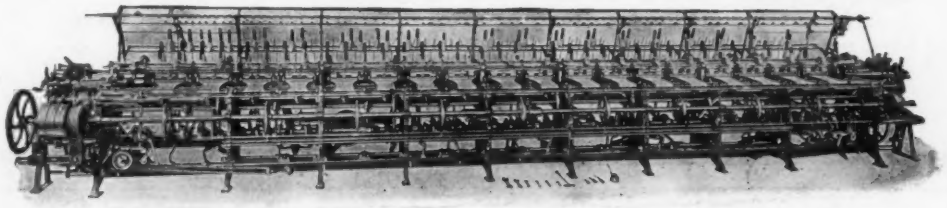

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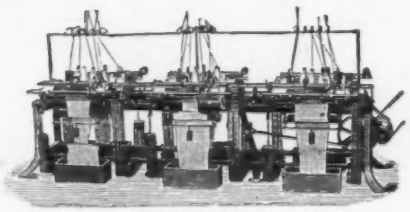

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For Fancy Goods in largest variety, Shawls, Capes, Caps, Borders, Fringes, Lace Work, etc., in silk, wool, cotton.

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1 Bruce band folder and cutter.
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3 Double Ribbed Machines.
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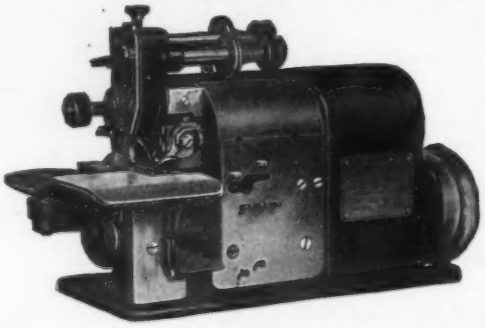
20 " B 188 " "
54 " B Machines for sizes.
24 Mayo "Acme" " " "
500 Dozen hosiery shaping boards.
1 Crane Style Collarette Machine 20 in. diameter 16 Needles.
1 Curtis & Marble Napper.
1 Davis & Furber "
1 McCreary "
22 National Knitters, 3¾ in,. 216 needles.
1 20-plate Crawford Press.
10 Jones Fleecers for hosiery.
1 Davis & Furber 72″ Napper, 20 rolls.

WRITE FOR COMPLETE LIST. APPRAISEMENTS A SPECIALTY.
We are always in the market to buy good second-hand Knitting and Finishing Machinery.

The Merrow

High Speed Overseaming, Overedging and Scallop Stitch Machines are

FAST
DURABLE
Light Running



OUR NEW STYLE 60 MACHINE for Trimming and Overseaming in one Operation produces the strongest, best Seam and does it with the greatest economy.

USE STYLE 18 for Horse Blankets. STYLE 17 or 22 for Bed Blankets. STYLE 35 B SHELL, for Necks and Fronts of Rib Goods, produces the most showy, substantial finish.

Send for Catalogue and Samples.

THE MERROW MACHINE CO. HARTFORD, CONN.

Knickerbocker Building, Sixth and Arch Sts., Phila. Room 321, 467 Broadway, New York

Full Fashioned Hosiery Machines

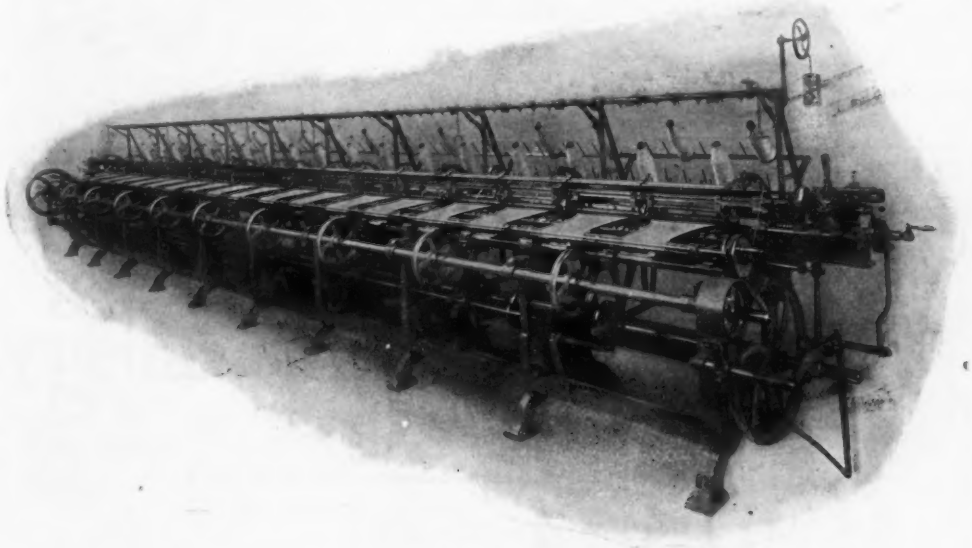
BUILT BY

SCHUBERT & SALZER

Largest Manufacturers of all classes of Hosiery Machines.

The plant, which is located in Chemnitz, Germany, declared by engineering experts and hosiery manufacturers to be the finest of its kind, is equipped with the most modern American and European machine tools, employing 1600 skilled workmen.

These machines have been proven the best constructed and most productive in the market for the manufacture of cotton, lisle and silk hosiery and since their introduction into this country 13 years ago have always been the leaders among a number of competitive makes, as upon trial they have fully borne out all that is claimed for them.



REFERENCES:

All the leading manufacturers of full fashioned hosiery in this country. Largest individual order for 65 eighteen section machines placed recently by the new million dollar concern, the Brown-Moore Hosiery Co. of Philadelphia.

AMERICAN REPRESENTATIVE:

OTTO WALTHER, - 507 Bourse, - Philadelphia.

The Invincible

Full Automatic.

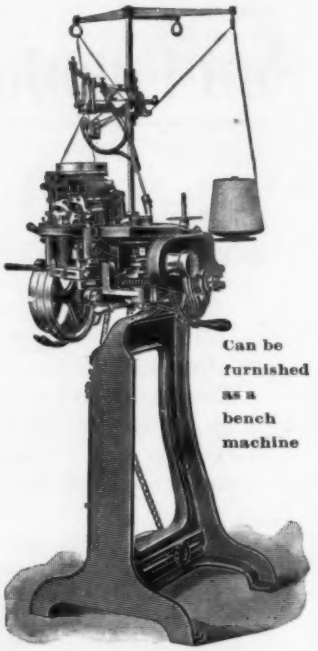
"The KNITTER that KNITS"

THE LARGEST PRODUCER OF PERFECT WORK.
SIMPLE, POSITIVE AND EASY TO OPERATE.

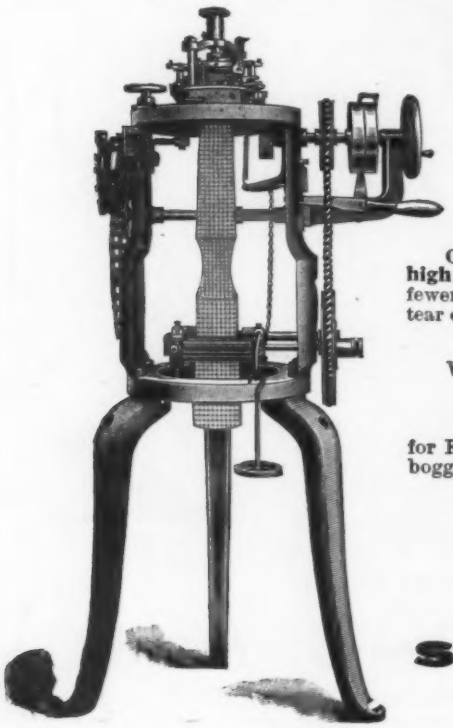
E. JENCKES MFG. CO.

Pawtucket, R. I.

PHILADELPHIA OFFICE,
101 North Sixth St.



Can be furnished as a bench machine



High Speed Rib Knitting Machinery.

Our latest model machinery has been designed to run at very high speed, giving large production. This is accomplished with fewer seconds, less breakage of needles, less jar and wear and tear on machines than has been customary at lower speeds.

We also make Special

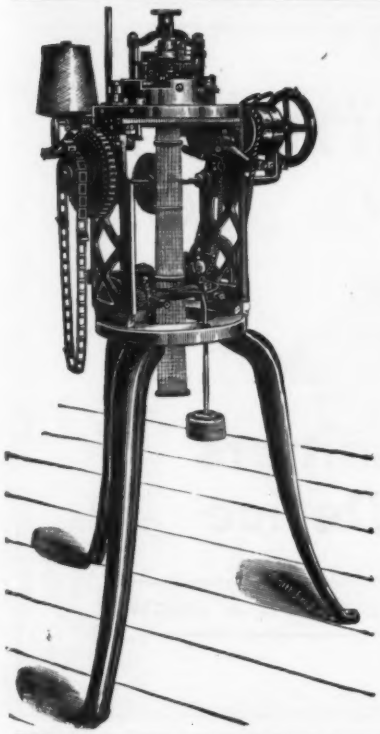
STRIPING AND DESIGNING MACHINES

for Fancy Golf Stockings, Bathing Suits, Sweaters, Toques, Toboggan Caps, Skirts, etc.

Our Machinery gives large production at low cost and enables manufacturers to meet the market always and make a profit.

STAFFORD & HOLT,

LITTLE FALLS, N. Y.



H. Brinton & Co.

213-215 Race Street, Philadelphia, Pa.

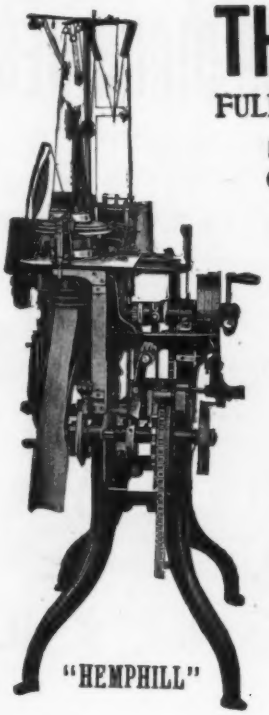
BUILDERS OF

Knitting Machinery

For HOSIERY and UNDERWEAR.

Complete Estimates Furnished. Send for Particulars.

The cut shows our **Improved Automatic Ribber with Welt and Slack Course** for Half Hose, Tops and Ribbed Legs.



"HEMPHILL"

THE TWO LEADERS

FULLY AUTOMATIC HOSIERY KNITTERS

FOR MAKING ALL KINDS AND GAUGES OF SEAMLESS HOSIERY

One with **GEARS**, the other with **CHAIN** for pattern mechanism, to meet the various tastes of different manufacturers.

Both used and approved by leading hosiery manufacturers.

Both contain all the well-known essentials demanded of first-class knitting machines.

With these two machines we can supply all manufacturers' possible wants in the best possible manner.

Write us for further particulars and prices.

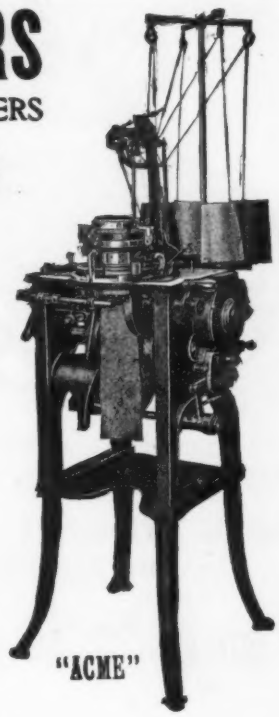
We also make all kinds of **LATCH NEEDLES.** Many leading manufacturers use our needles and say they are the best on the market. Send us a trial order.

MAYO

KNITTING MACHINE AND NEEDLE COMPANY

FRANKLIN FALLS, N. H.

Philadelphia Office, Knickerbocker Bldg., cor. 6th & Arch Sts.



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EXCELSIOR KNITTING MACHINE MFG. CO.

Meadow and Washington Streets

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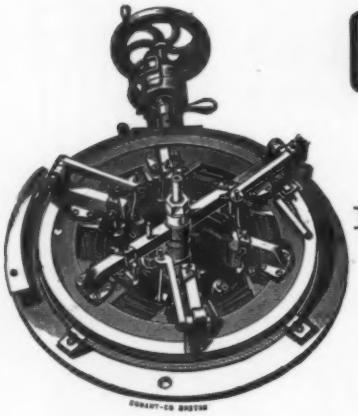
BUILDERS OF

Full Automatic Knitters

With or without **Transferring Device**

ALL SIZES AND GAUGES, 2 1-4 INCH TO 4 INCH

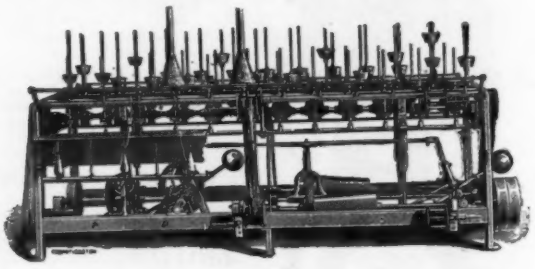


CIRCULAR KNITTING MACHINES

Either plain or full automatic, with stop motions complete. 4 to 24 feeds for

RIBBED UNDERWEAR

Automatic Racking and Striping Machines for Sweaters, Cardigans, Collarettes, Cuffs and Anklets.



ALSO BUILDERS OF THE WELL-KNOWN

ABEL WINDERS, SEAMERS and LOOPERS.

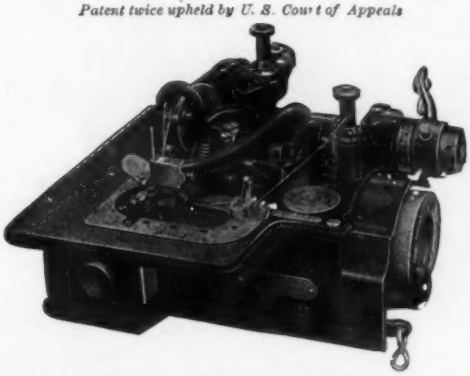
LEIGHTON MACHINE CO., - Manchester, N. H.

AN INSTRUMENT OF PRECISION!

"OVERLOCK" MACHINE

(Trade Mark) (Pat. April 5, 1892)

Patent twice upheld by U. S. Court of Appeals



Trade Mark

WILLCOX & GIBBS SEWING MACH. CO. NEW YORK.

Business Established in 1859.

For TRIMMING, SEAMING (or Hemming or Overedging) and COVERING Raw Edges of Knit Underwear and Hosiery in **ONE OPERATION** at **3000 Perfect Stitches per Minute.**

WILLCOX & GIBBS SEWING MACHINE CO.,

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NEW YORK, N. Y.

LONDON PARIS MILAN DRESDEN BRUSSELS NOTTINGHAM

WALTER & CO., Limited

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SPECIAL MANUFACTURERS OF

Knitting and Winding Machines

for hand and power driving, of best quality and perfect construction.

Specialty: Jacquard Machines

for hand and power driving for manufacturing of sweaters and every possible fancy article of that nature.

PRICE LIST AND SAMPLE ON APPLICATION

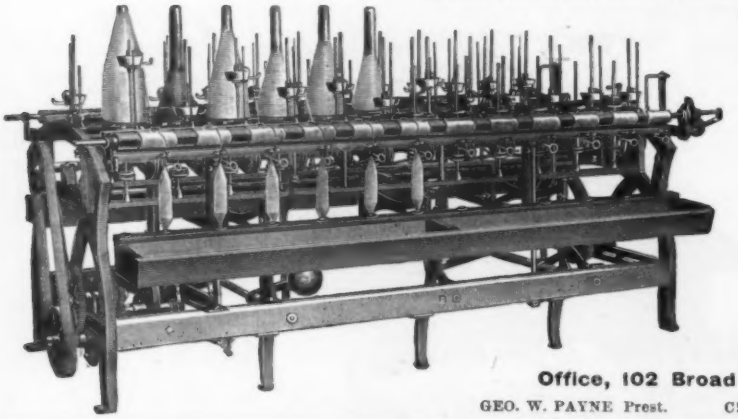
American Representative

E. W. S. JASPER,

120-122 Liberty St., New York.

OVER 1,900 PAYNE WINDERS IN USE

By Hosiery Manufacturers,
Wind for Cop, Skein or Bobbin.



Improved

Upright Spoolers,

To Spool from Cop, Skein or Bobbin.

Doubling Spoolers for doubling 2, 3, or more ends into one.

Upright Quillers, Quill from Cop, Skein or Bobbin.

Ring Dresser, Spooler and Reel Spindles, Cop Skewers, Warp, Spool, Spooler, Guides, Bolsters and Stops Made and Repaired at Short Notice.

GEO. W. PAYNE CO.,

[Est. 1865. Inc. 1903.]

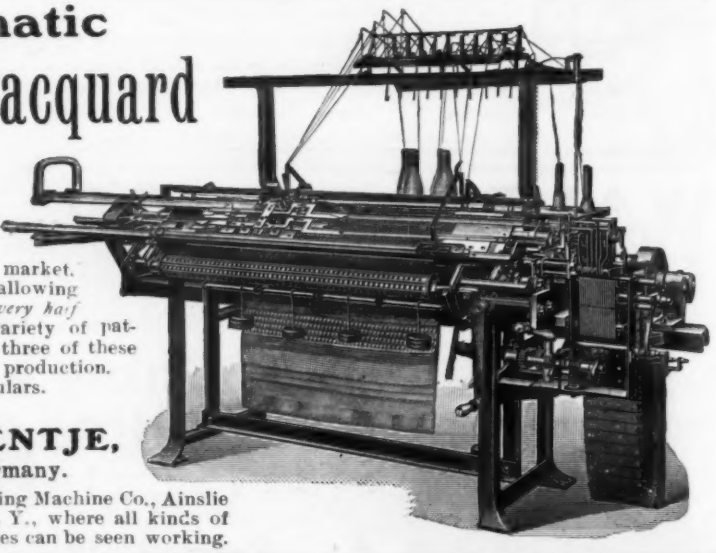
Office, 102 Broad Street, Pawtucket, R. I.

GEO. W. PAYNE Prest. CLINTON F. PAYNE, Sec'y. and Treas.

Full Automatic
Noppen & Jacquard
Machine

for high-grade sweaters, jerseys, etc.
Latest improvements

Recognized as the best in the market. With Jacquard attachment allowing *change of operating mechanism every half round*, therefore unrivaled in variety of patterns. One operator attends to three of these machines. High speed. Large production. Ask for samples aud full particulars. State gauge and size you need.



CLAES & FLENTJE,

Mühlhausen Thr., Germany.

Representatives: Ainslie Knitting Machine Co., Ainslie and Humbol Sts., Brooklyn, N. Y., where all kinds of our hand and automatic machines can be seen working.

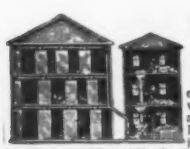
WILLIAM C. BULL, BENNINGTON, VERMONT.

MAKER OF

For Ladies', Gents' and Children's Goods.
Latest Styles.
Best Workmanship.

Drying Form Boards

OF EVERY VARIETY.



CHARLES H. SCHNITZLER,
Patentee and Sole Manufacturer of
THE PNEUMATIC CONVEYOR

For the handling of wool and cotton stock, rags, excelsior, jute and all kinds of fibrous material, wet or dry. Also spool elevators, steam heating and ventilating, and mill work generally. Blower and fan work a specialty. This conveyor is patented. Beware of infringement.

SATISFACTION GUARANTEED Patented Oct. 13, 1903.
215 NORTH SECOND ST., - PHILADELPHIA, PA

Shipping Clerk's Fountain Marking and Stenciling Brushes

A necessary article in every Textile Mill
Agents Wanted.

Handle holds the ink. Send for particulars and circular.

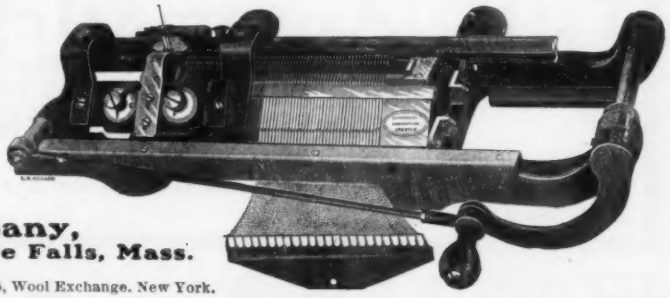
Universal Fountain Brush Co., 100 E. 129th St., New York City

The LAMB

LEADER OF KNITTERS

Original and Still the Best.

Most widely used; being operated in every civilized country in the world. For description, prices, etc., see catalogue.



Circular Machines, Rib Top and Seaming Machines.

Lamb Knitting Machine Company,

P. O. Box, 5888, **Chicopee Falls, Mass.**

J. E. WOODHEAD, 100 22d St., Chicago.
L. D. SANBORN, Room 505, Wool Exchange, New York.

Drying Forms.

BOARDS FOR FAST BLACK DYERS.

HOSIERY FINISHING BOARDS.

BEST WORK. PROMPT SERVICE. PRICES ALWAYS RIGHT.

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Hosiery Boards.

Oils and Mill Supplies

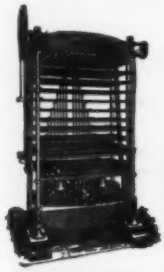
Sewing Machine Belting, Press Boards, Belt Hooks, Lace Leather, Leather Belting, Latch Needles, Oilers of every description, Mill Baskets and Brooms, Mill Banding, Rings and Springs, Packings of all kinds, Fire Pails, Shears and Trimmers, Cloth Knives, Etc.

E. W. Murphey & Co.

HUDSON, N. Y.

Established 1831.

The CRAWFORD



HOLLOW STEAM

PLATE PRESS

For Knit or Woolen Goods.

The most reliable machine of the kind on the market.

PRESS PAPERS and FENDERS.

SPENCE & RIDEOUT,

Successors to
J. J CRAWFORD & SON,

NASHUA, N. H.

Established 1868.

Robinhold Machine Co.

Patentees and Manufacturers

of the only

Practical Automatic

Power Top Cutting Machine

Will cut anything with a Welt

650 N. 8th Street
Reading, Pa.

PAXTON & O'NEILL'S

Full Automatic Knitter

FOR ALL KINDS AND GAUGES OF SEAMLESS HOSIERY.
RANGE ON HALF HOSE AND LADIES FROM 260 NEEDLES DOWN.

3-4 AUTOMATIC KNITTER

With Lace Effects.

Exclusive rights to BROWN'S LACE ATTACHMENT.

537-39-41 North 3d St., - - - - - PHILADELPHIA.

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Patent Single-Stitch

LOOPING MACHINE.

Needle working from the inside, avoiding the breaking of needles and points and picking up the metal.

Single and Double Stitch, or Both Combined.

JOHN W. HEPWORTH & CO.,
N. W. Cor. Lehigh Ave. and Mascher Street,
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Patent Loopers

Both single and double Stitch. with the Patent Raised or Straight Points.

Beattie Machine Works,

Cohoes, N. Y.

LEWIS JONES,

60½ and Media Streets, . . . PHILADELPHIA.

GAS ENGINES for city or country
BRUSHING MACHINERY
KNITTING MACHINERY
} EFFICIENT DURABLE LOW IN PRICE

Duxbury's English Calender Roll Papers

FOR EMBOSSING AND OTHER CALENDERS.

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The Hosiery and Knit Goods Trade

are large users of

TURKISH SOFTENER TRADE MARK

for

Fast Black Dyeing, Finishing, Etc.

Also Resolvent Compound, Olive Oil, Soluble Oil and Cream Softener.

O. F. ZURN CO.

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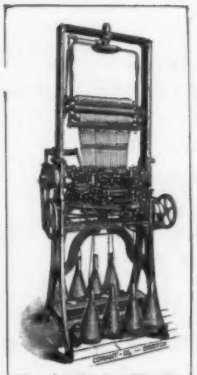
CHARLES COOPER

BENNINGTON, VERMONT.

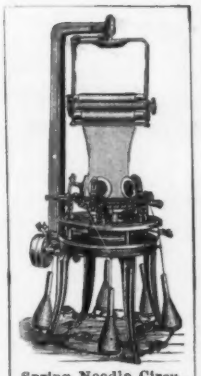
MANUFACTURER OF

Knitting Machinery



Circular Spring Needle Rib Top Machine.

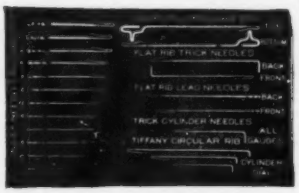
Flat and Circular Rib, both Spring and Latch Needle, Plain Circular Machines, Lead or Trick Cylinder.



Spring Needle Circular Plain Body Machine.

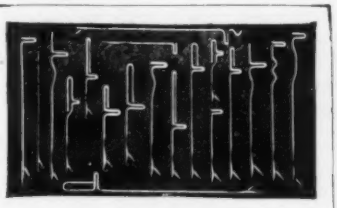
Spring Needle Cylinder Rib-Top Machines

For making Cuffs, Drawer Bottoms and Shirt Borders.



Spring Needles.

Spring and Latch Knitting Needles, Burr Wheels, Burr Blades, Sinkers, Jacks, Etc.



Latch Needles.

COLLARETTE ATTACHMENT.

AMERICAN REPRESENTATIVE.

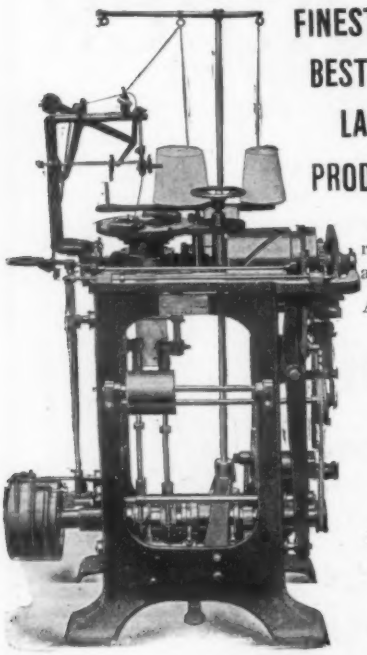
G. H. ROGERS,
509 Clinton St., Hudson, N. Y.

EUROPEAN REPRESENTATIVE.

FELIX LEDERER.
Ix/4 Schubertgasse, Nr. 22, Vienna, Austria.

"NATIONAL"

Stands for



FINEST GAUGES
BEST FABRIC
LARGEST
PRODUCT ON

Greatest Variety of Laces and Novelties.

Allautomatic.

Lowest Cost for Operating

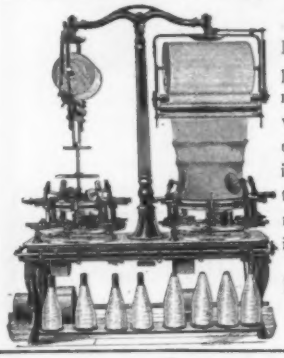
Also
Rib Knitting Machinery, Overedge, Crochet and Shell Stitch.

NATIONAL AUTOMATIC KNITTER CO.

728 Cherry Street, PHILADELPHIA, PA.

We are the Oldest Manufacturers

of this Design of Spring Needle Knitting Machine in this Country



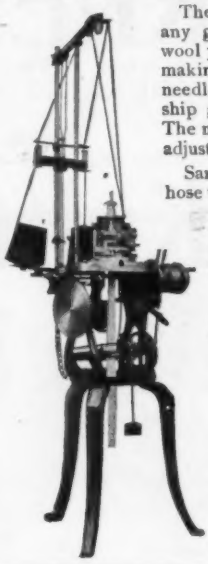
40 years' experience

Do not be misled by people who became manufacturers in 1903 without any previous experience who are trying to represent that they are the oldest manufacturers. Investigate.

Robt. W. Gormly & Co.
Troy, N. Y.

Use the Ruth

Ribber and Stop Motion



The Ruth Ribber will produce any gauge goods from cotton or wool yarn at a high speed without making bad work or breaking needles. Material and workmanship guaranteed to be first-class. The machine is easy to operate and adjust.

Samples of 240 needle gauze half hose tops furnished by request.

Meet us in Philadelphia at the Exhibition of the National Association of Hosiery Manufacturers of Knit Goods, May 11-16, 1908, or write us now.

Many mills are pleased with our machine and we are sure we can please you.

Give us a trial. Write to-day.

RUTH Machine Co.

YORK, PA.

G. W. RUTH, Manager

MAKE YOUR PAPER BOXES TALK.

Use Your Own Name or Trade Mark Paper for Covering Your Boxes.

We can now furnish your box-maker with a special design paper for your own private use at a price as low as cheap white glazed.

To secure this price, orders must be for two hundred reams at a run.

Let us submit samples showing colors and shades, and if desired, we will make up a design for you.

CHAS. BECK PAPER CO., LTD.

609 Chestnut Street, Philadelphia, Pa.

STANDARD MACHINES FOR HOSIERY MAKING.

The STANDARD F, with attachments, can make any and all of these fabrics:

PLAIN GOODS
PLAITED WORK
THREE COLOR STRIPES
TIPPED HEEL AND TOE
WHITE FOOT
CHANGED HEEL AND TOE
CARTER TOP
LOOPERS SLACK COURSE

Most Stockings--Best Fabrics--Longest Life

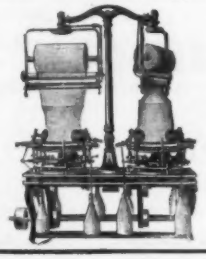
STANDARD MACHINE COMPANY,
OFFICE AND SHOW ROOMS
510 Ludlow St. Philadelphia

We Are the Oldest Manufacturers
IN THE WESTERN HEMISPHERE
Of Circular Spring Needle Loop-Wheel Knitting Machinery.

TOMPKINS BROS. CO., Troy, N.Y.

We submit the following extract from the sworn testimony of R. W. Gormly, in U. S. Circuit Court, Northern District of New York, in equity, No. 6764:

Cross Question 123. How long have you been a manufacturer of knitting machines? Answer. I started in this business about the middle of May, 1900.

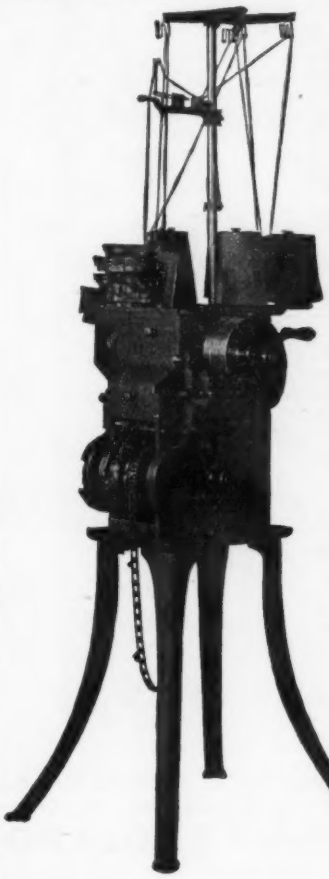


Tompkins Knitter

This design was adopted in 1875.

BUSINESS ESTABLISHED in 1846, before ROBERT W. GORMLY Was born, according to his testimony in the case above cited.

Hemphill's Latest
"The Banner"
FULL AUTOMATIC MACHINE.
Specially adapted to Platted Goods.



Greater variety of work

Largest production

Highest speed

Simplest

More yarn changes

Simpler needles

Least repairs

The wonder of the 20th Century
Manufactured by the
HEMPHILL MFG. COMPANY
321 PINE ST., PAWTUCKET, R. I.

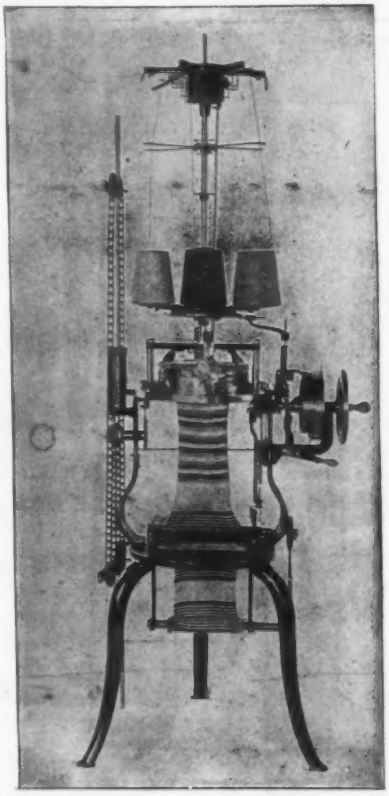
Established 1870.—Incorporated 1890.

CRANE M'F'G. CO.,

LAKEPORT, N. H.

Manufacturers of

Spring and Latch Needle Machines for both rib and plain work, producing a great variety of fabrics. Patent removable hardened Wing Burr Wheels.



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Do you want the biggest production with the least menders, for the least money? If so, write to the Boss Knitting Machine Works for their circular with full directions. There is no cylinder to be handled. We use only one cylinder and transfer device for half hose or ladies' hose. This machine beats them all. Has no equal for simplicity and durability. Makes 300 revolutions per minute. Built in sizes from 2¼ to 5½; from 40 to 224 needles. Automatic in heel and toe. It is the strongest built knitter on earth.

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Our Knit Fabric Cutter

will cut from the roll, knit fabric into any length from 10″ to 40″ at the rate of 100 pieces a minute. The lengths are accurate, the waste is a minimum, the labor unskilled.

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ALL STYLES AND KINDS FOR FLAT AND ROUND BRAIDS.

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TRY OUR "SUPERIOR" OR SUNKEN RIVET-HEAD NEEDLES

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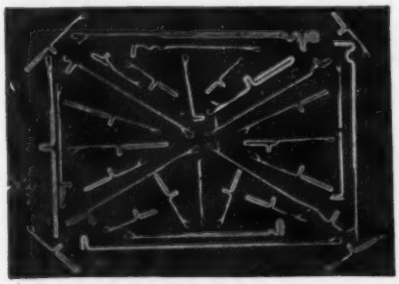

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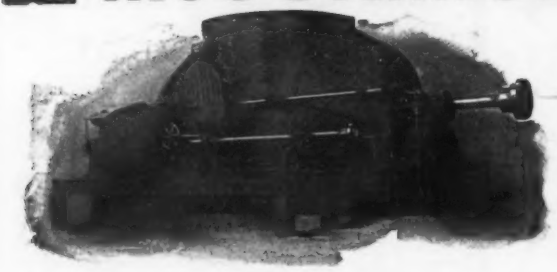

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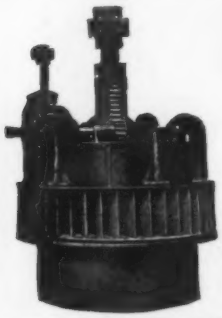

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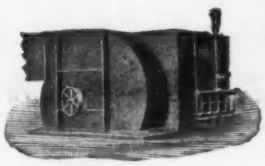

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This is insured, together with a comfortable temperature, by the "ABC" Fan System.

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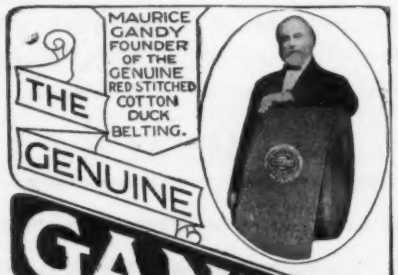

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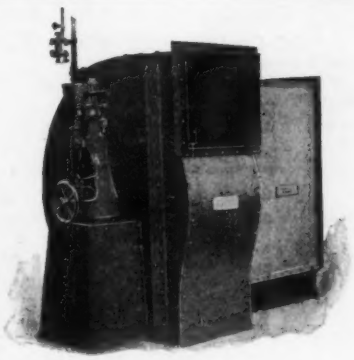

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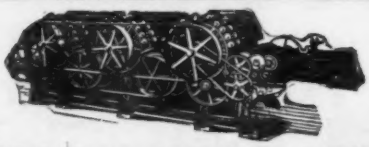

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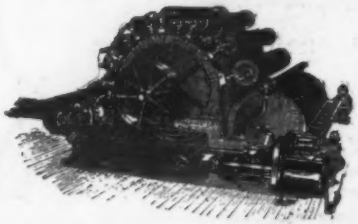
For reducing to Fibre Cotton and Wool Waste, Cloth Clippings, Etc.



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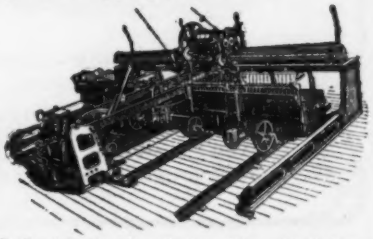

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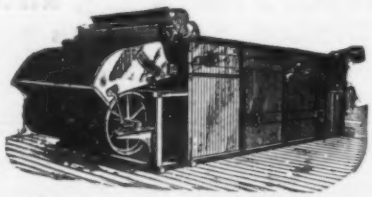
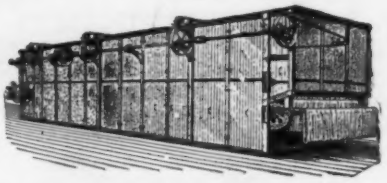


Automatic Cotton or Wool Stock Dryer.



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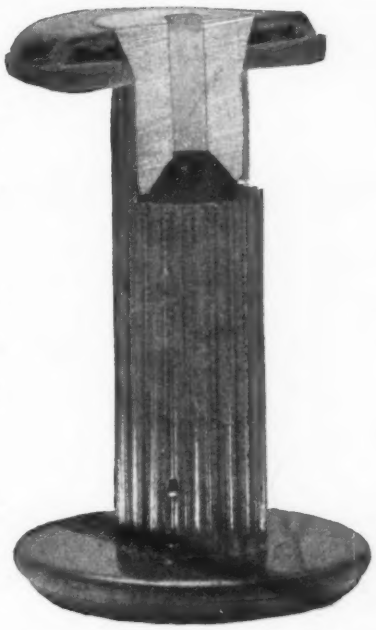

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